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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



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NATIONAL OCEANIC AND  
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DATA SERVICE / ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JANUARY 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data Service, NOAA

**HIGHLIGHTS:** January was a severe winter month for all of the Nation east of the Rocky Mountains. Surges of cold air from central Canada came one behind the other causing almost continual below-normal temperatures. The average temperature for January was 10 to 13° colder than normal for the first month in most of the Plains and Midwest. Precipitation was above normal from eastern Texas to New England. Low pressure systems formed as the cold air moved over the warm Gulf of Mexico and moved northeastward, triggering heavy rain and some sleet or snow in the South and heavy snow northward. Record low barometer readings were noted as a low off the East Coast merged with one moving up the west side of the Appalachians. The accompanying blizzard in the Ohio Valley and eastern Great Lakes paralyzed the area.

West of the Rockies, opposite conditions prevailed. Warm temperatures persisted throughout the month. Some almond trees were in premature bloom in the lower San Joaquin Valley. Rain, with snow at higher elevations, was well above normal in most of the West.

A welcome return to normal or better precipitation began the year on a pleasant note for the West. During the first week of the month, moderate rain fell along the West Coast, but only light amounts were recorded in the central and southern Plateau Region. Elsewhere, little or no rain fell on western Texas, Oklahoma, Kansas, and eastern Colorado. A low pressure system brewed at mid-week in Missouri, and rain moved through the South borne northward to New England in the southerly flow. Cold air moved southward behind the low pressure to usher in the first cold outbreak east of the Rockies. Temperatures remained well above normal west of the Continental Divide.

Much of the Nation measured some precipitation during

the second week. Rain or snow persisted in the West and spread inland across the Plateau to the Rockies. Some heavy amounts fell in northern California and the Sierras. Cold air enveloped the area east of the Rockies early in the week. A low pressure system in the Gulf of Mexico chugged eastward and then north-eastward. Moderate rain fell in eastern Texas and Arkansas and all the way along the East Coast. Temperatures were warm in the West and very cold east of the Rockies.

Cold air continued to flow southward from central Canada during the third week of January causing the formation of two massive winter storms which originated in the Gulf of Mexico. The first trudged northward west of the Appalachians and dumped heavy snow in the Ohio Valley and northward. The second storm charged up the Atlantic Coast and produced heavy snowfall from the mid-Atlantic through New England. Freezing rain and/or snow reached into the Deep South, where cold temperatures touched the Florida citrus. Elsewhere, precipitation continued west of the Rockies providing welcome runoff for the streams and reservoirs.

The last week of January brought some respite from the persistent rain in California, although the last day of the month saw rain in southern California and the Southwest. Generally light but welcome moisture fell in western Texas. Elsewhere one of the most intense storms of record blitzed the Ohio Valley and Great Lakes region with blizzard conditions. Heavy rain fell in the South; 10 inches flooded areas around Mobile. The rain or snow extended into New England. Another outbreak of cold air continued the deep freeze east of the Rockies and unusually warm weather continued from the Plateau westward.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

JANUARY 1978

STATE	Temperature					Precipitation				
	Monthly extremes					Monthly extremes				
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Brewton 3 SSE	74	6	3 Stations	7	10+	Robertsdale	16.24	Fayette	2.62
Alaska	Annette WSO AP	55	9	Allakaket	-52	9	Mac Leod Harbor	39.99	Lonely	T
Arizona	Gila Bend	80	29	Lukachukai	-7	25	Bright Angel Ranger Sta.	9.79	Winslow WSO AP	.36
Arkansas	Texarkana FAA AP	77	7	Yellville	-4	18	Sparkman	9.50	Bentonville	.95
California	4 Stations	79	29+	Bridgeport	-16	24	Delta	37.79	Maricopa	.68
Colorado	2 Stations	63	6	Taylor Park	-47	2	Bonham Reservoir	6.15	2 Stations	T
Connecticut	2 Stations	60	26+	Coventry	-8	24	Cockaponset Ranger Sta.	11.23	Bulls Bridge Dam	6.93
Delaware	3 Stations	65	26	2 Stations	5	24+	Wilmington WSO AP	8.41	Middletown 1 WSW	6.07
Florida	Hialeah	85	2	Smith Creek	15	11	Pensacola FAA AP	13.41	Fort Drum 5 NW	1.19
Georgia	2 Stations	76	25+	Blairsville Exp. Station	2	12+	Clayton 1 SSW	11.59	Folkston 3 SW	2.88
Hawaii	2 Stations	89	30+	Mauna Loa Slope Obs., HI	29	30	Kukaiiau 222, Hawaii	18.86	4 Stations	.00
Idaho	2 Stations	58	14+	Stanley	-46	1	Fenn Ranger Station	5.30	Chilly Barton Flat	.27
Illinois	Cairo WSO CI	66	7	Peru 2 W	-18	10	Cairo WSO CI	4.09	Quincy FAA AP	.36
Indiana	3 Stations	57	8+	4 Stations	-16	30+	Liberty 3 SSE	5.47	Wanatah 2 WNW	.87
Iowa	Sidney	46	6	Elkader 5 SSW	-26	15+	Lansing	1.29	Harlan	.08
Kansas	Liberal	67	5+	2 Stations	-20	17	Fort Scott	1.04	Scandia	.03
Kentucky	3 Stations	65	8+	Tomahawk 1 WSW	-14	11	Hopkinsville	8.49	Fords Ferry Dam 50	3.82
Louisiana	2 Stations	82	7	Ruston-LA Tech. Univ.	11	3	New Orleans WSMO AP	13.63	Ruston	3.88
Maine	Augusta FAA AP	56	9	2 Stations	-27	22+	Eastport	9.76	Van Buren 2	3.75
Maryland	2 Stations	65	26+	Oakland 1 SE	-20	23	La Plata 1 W	9.06	Frederick 3 E	4.77
Massachusetts	5 Stations	60	27+	Chester 2	-15	24	Provincetown 1 N	11.90	Adams	5.17
Michigan	Battle Creek	41	6	Ironwood	-29	17	Dowagiac 1 W	4.88	Stambaugh 1 S	.76
Minnesota	Winona	38	7	Thorhult 1 S	-37	17	Austin 3 S	1.54	New London	T
Mississippi	2 Stations	77	7	2 Stations	9	28+	Pascagoula 2 ENE	15.51	Brooksville Exp. Sta.	2.59
Missouri	Kennett Radio KBOA	67	7	2 Stations	-18	21	Caruthersville	5.03	Maryville 2 E	.17
Montana	Yellowtail Dam	52	5	Redstone	-40	16	Summit	4.11	Bloomfield	.03
Nebraska	Bridgeport	57	5	Halsey 2 W	-26	20	Box Butte Exp. Station	1.60	Wilsonville	.00
Nevada	Sunrise Manr Las Vegas	68	29	Gibbs Ranch	-13	24	Mount Rose Bowl	8.22	Wadsworth 4 N	.21
New Hampshire	2 Stations	58	27+	Mount Washington	-30	10	Mount Washington	18.19	Lancaster	4.33
New Jersey	4 Stations	63	26+	Sussex 1 SE	-5	25+	Bernardsville 2 E	11.00	Atlantic City	5.59
New Mexico	Jal	75	5	El Vado Dam	-13	26	Cloud Country Club	3.70	2 Stations	T
New York	Glenham	61	26+	Old Forge	-24	4	Boonville 2 SSW	13.28	Sodus Center	1.85
North Carolina	12 Stations	72	26+	Grandfather Mountain	-14	10	Lake Toxaway 2 SW	14.17	Hot Springs 2	4.06
North Dakota	Watford City 14 S	36	22	Willow City	-46	17	Fullerton	D .92	7 Stations	T
Ohio	Plymouth 2 WSW	58	8	Fredericktown 4 S	-20	24+	Bourneville 1 SSW	7.32	Montpelier 1 WSW	2.18
Oklahoma	3 Stations	75	8+	2 Stations	-5	17	Broken Bow Dam	3.58	Beaver	.05
Oregon	Bandon 2 NNE	65	7	Seneca	-21	1	Port Orford 5 E	21.22	Long Creek	D .71
Pennsylvania	Philadelphia Drexel U.	64	9+	Francis E Walter Dam	-19	11	Mahanoy City 2 N	10.30	Madera	1.99
Puerto Rico	3 Stations	91	30+	Adjuntas Substation	49	12+	Pico Del Este	6.08	Jayuya 1 SE	.00
Rhode Island	North Foster 1 E	59	26	Kingston	-1	24	North Foster 1 E	11.04	Newport	D6.86
South Carolina	2 Stations	74	8	Caesars Head	0	10	Salem	11.07	Beaufort 7 SW	3.49
South Dakota	Oelrichs	51	5	Mellette	-32	10	Onida 4 NW	.93	7 Stations	T
Tennessee	Memphis WSFO	71	7	Unicoi 3 SW	-10	11	Linden 2	10.25	Shelbyville 3	3.38
Texas	Mission 4 W	87	17	Perryton 5 NNE	-4	17	Jasper	9.41	Batesville	.00
Utah	2 Stations	63	30+	Scofield Dam	-29	1	Silver Lake Brighton	5.88	Eskdale	.17
Vermont	Bristol 5 NNW	58	9	Mount Mansfield	-24	11	Searsburg Station	8.95	Rutland	4.15
Virginia	2 Stations	70	26	Mt Lake Biological Sta.	-14	10	Montebello 2 NE	10.61	Marion Evap Station	3.42
Virgin Islands	Frenchmans Bay	88	31	Cruz Bay	62	27	Winberg	2.78	Tague Bay	.66
Washington	2 Stations	60	19	Chewelah 4 SSW	-28	2	Neah Bay 1 E	15.16	Asotin 14 SW	.80
West Virginia	2 Stations	64	9+	2 Stations	-18	23+	Snowshoe	D11.56	Athens Concord College	1.71
Wisconsin	Manitowoc	42	7	2 Stations	-29	30+	Lake Geneva	2.72	Couderay 7 W	.15
Wyoming	Powder River 2 SW	56	12	Snake River	-37	2	Snake River	4.65	Colony	.09



## METRIC UNITS

JANUARY 1978

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## CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1978

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)																
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32° or above	No. of days	Total	mm	Departure from normal	Greatest in 24 hours	25 mm or more	With thunderstorms	Total		Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky (sunrise to sunset)		
																				Snow	Ice pellets										Maximum depth on ground	
																																No. of days
COLORADO																																
ALAMOSA	2297	808.7	1020.6	4.2	-14.5	-5.1	3.1	10.6	9	-26.1	2	0	31	-12.6	56	8	2	4	7	0	112	51	0.9	8	14.3	36	18	9	13	5.9	Possible sunshine	
COLORADO SPRINGS	1873	836.7	1018.4	1.9	-9.6	-3.8	-1.9	12.2	6	-17.1	17+	0	31	-11.1	61	6	-2	2	10	0	107	25	0.4	8	13.0	NW	25	9	10	13	6.8	
DENVER	1610	834.7	1018.4	3.1	-9.9	-3.4	-2.3	12.8	6	-17.9	1	0	31	-11.1	61	7	-9	3	10	0	140	21	0.6	33	13.0	NW	25	2	5	16	6.9	
GRAND JUNCTION	1476	853.4	1021.3	1.9	-4.8	-1.4	1.6	17.2	16	-11.7	25	0	31	-4.4	84	27	11	13	12	0	305	18	0.6	12	15.6	NW	25	4	14	13	6.5	
PUEBLO	1428	855.4	1020.4	3.4	-10.9	-3.8	-2.7	15.6	6+	-18.9	2	0	31	-9.4	71	4	-4	5	8	0	91	51	0.8	12	15.6	NW	25	4	14	13	6.5	
CONNECTICUT																																
BRIDGEPORT	2	1008.1	1014.8	0.6	-6.6	-3.0	82.0	12.8	9	-12.8	24	0	29	-10.0	66	201	132	71	13	0	589	432	1.6	28	18.8	27	9	9	5	17	6.5	
HARTFORD	52	1008.1	1014.8	-0.2	-9.2	-4.7	-0.7	15.0	9	-18.3	24	0	31	-10.0	66	244	161	62	13	0	940	610	1.6	28	21.9	SW	26	6	6	19	7.0	
DELAWARE																																
WILMINGTON	23	1013.9	1017.0	1.5	-6.9	-2.7	-2.7	15.6	9	-14.4	4	0	29	-8.3	66	214	141	54	11	0	406	178	2.7	29	14.8	24	26+	7	10	14	6.6	
DIST. OF COLUMBIA																																
WASHINGTON DULLES	88	1005.8	1017.6	2.3	-7.5	-2.6	-2.7	16.1	9+	-20.0	23	0	27	-7.8	59	166	94	42	13	0	340	229	2.3	29	17.4	20	26	7	6	18	6.7	
WASHINGTON NATIONAL	3	1015.6	1017.9	4.1	-3.6	0.3	81.7	16.7	9+	-12.2	10	0	27	-7.8	59	181	114	52	12	0	262	127	2.5	30	24.6	SW	26	6	7	18	6.9	
FLORIDA																																
APALACHICOLA	6	1021.0	1021.5	12.3	2.7	7.6	-4.3	20.6	6	-3.9	15+	0	13	2.8	74	107	29	38	10	3	T	0	1.7	2	14.3	N	9	5	5	21	7.3	
DAYTONA BEACH	9	1019.0	1020.6	17.3	6.9	12.2	-2.5	27.2	25	-1.1	16+	0	6	5.0	66	73	21	37	9	2	0	0	1.7	29	19.2	26	25	13	9	3.8		
FORT MYERS	5	1020.0	1020.6	20.4	9.6	15.1	-2.4	27.8	19	0.6	16	0	0	3.3	70	63	21	38	8	4	0	0	1.2	29	15.6	18	8	10	14	7.3	53	
JACKSONVILLE	8	1020.0	1021.0	15.3	3.2	7.9	83.3	25.6	25	-4.4	30	0	11	0	13.9	77	118	47	64	6	1	0	1.6	29	17.4	30	13	9	10	13	5.8	
KEY WEST	65	1019.0	1019.8	20.3	15.4	17.9	83.6	24.4	1	9.4	30	0	0	0	13.9	77	54	12	14	8	3	0	2.4	4	13.0	SW	25	8	10	13	5.8	
LAKELAND	61	1020.0	1020.3	21.9	13.6	17.8	81.8	27.2	23+	-1.7	10	0	0	0	12.8	74	62	3	24	8	0	0	1.4	34	20.6	24	13	7	12	12	6.2	
MIAMI	2	1020.0	1020.3	19.4	8.1	13.8	-1.9	28.5	25	-4.4	30	0	0	0	12.8	74	53	-2	23	10	2	0	1.4	34	20.6	24	13	7	12	12	6.2	
MIAMI/HC COY AFB	24	1019.9	1020.7	10.8	1.2	7.1	-5.1	28.5	25	-5.0	10	0	3	0	6.7	69	341	230	13	6	T	0	1.0	31	13.0	27	14	6	11	11	6.0	
PENSACOLA	34	1017.5	1021.7	10.8	1.2	7.1	-5.3	28.5	25	-5.0	10	0	14	0	6.7	69	341	230	13	6	T	0	1.0	31	13.0	27	14	6	11	11	6.0	
TALLAHASSEE	17	1019.3	1021.6	13.0	1.2	7.1	-5.3	28.5	25	-5.0	10	0	17	0	6.7	69	341	230	13	6	T	0	1.0	31	13.0	27	14	6	11	11	6.0	
TAMPA	17	1020.7	1020.1	18.0	17.6	16.8	-3.0	26.1	7	-1.7	16	0	4	7.2	75	72	12	12	9	0	0	0	1.0	31	13.0	30	19	6	7	18	6.9	
WEST PALM BEACH	9	1019.3	1020.1	21.5	11.9	16.7	81.9	27.2	25+	-2.8	16+	0	0	10.6	69	86	20	72	9	1	0	0	0.8	32	15.6	26	8	6	11	14	6.1	
GEORGIA																																
ATHENS	244	989.5	1019.4	6.5	-2.9	1.8	-4.5	17.2	25	-10.6	11+	0	22	-4.4	68	176	55	83	10	1	T	T	2.1	29	15.6	25	25	12	5	14	6.1	
ATLANTA	308	982.1	1020.2	5.6	-3.8	0.9	83.7	16.1	25	-12.8	11	0	24	-5.6	66	179	56	97	13	0	T	T	2.1	29	15.6	25	25	12	5	14	6.1	
AUGUSTA	41	1014.6	1020.1	9.6	-1.8	3.9	83.7	21.1	8	-10.0	11	0	21	-2.8	69	197	110	73	10	0	T	T	2.1	27	15.6	23	26	11	4	16	6.1	
COLUMBUS	117	1006.8	1021.3	9.2	-0.9	4.2	-4.1	21.1	7	-7.8	11+	0	21	-2.2	69	197	102	108	8	1	T	T	2.1	27	15.6	23	26	11	4	16	6.1	
MACON	108	1007.8	1021.1	10.2	-0.8	4.2	-4.1	20.6	7	-8.9	11	0	19	-1.1	71	190	97	101	9	0	T	T	2.1	27	15.6	23	26	11	4	16	6.1	
ROME	194	1007.8	1021.1	10.2	-0.8	4.2	-4.1	20.6	8+	-8.9	11	0	25	-1.1	71	190	97	101	9	0	T	T	2.1	27	15.6	23	26	11	4	16	6.1	
SAVANNAH	14	1018.6	1020.4	12.2	1.0	6.6	-3.3	21.7	8	-6.7	11	0	17	-1.1	63	102	28	42	8	1	0	0	1.9	28	17.9	W	26	10	2	19	6.5	
HAWAII																																
HILO	8	1015.2	1016.5	27.1	17.0	22.1	0.3	29.4	8	13.3	13	0	0	17.2	78	137	-93	48	14	0	0	0	0.4	24	8.5	NW	11	9	11	5.4	54	
KAHULUI	2	1015.6	1016.1	27.7	19.2	23.4	1.1	30.6	22	13.9	13+	0	0	16.1	67	137	-93	48	14	0	0	0	0.4	24	8.5	NW	11	9	11	5.4	54	
KONA	15	1013.5	1015.8	27.7	18.6	23.3	1.3	29.4	29+	15.0	13	0	0	16.1	67	137	-93	48	14	0	0	0	0.4	24	8.5	NW	11	9	11	5.4	54	
LIHUE	31	1011.5	1016.8	26.4	18.0	22.2	0.4	28.3	31+	13.9	12	0	0	16.7	73	35	-124	12	11	0	0	0	1.1	4	11.2	SW	16	9	12	10	5.5	
IDAHO																																
BOISE	865	916.4	1018.8	6.4	-0.8	2.8	4.4	13.3	14	-13.9	1	0	15	-2.2	72	60	23	15	18	0	41	51	1.1	13	12.1	SE	16	2	5	24	8.2	
LEWISTON	431	1019.7	1019.7	4.3	-0.6	1.9	2.3	9.4	21	-20.0	2	0	11	-4.4	77	49	17	16	21	0	94	127	1.9	22	13.4	S	21	1	3	27	9.0	
POCATELLO	1358	883.2	1019.7	3.0	-4.0	-0.5	4.4	7.8	14	-18.3	2	0	26	-4.4	77	30	5	16	16	0	167	51	1.9	22	13.4	S	21	1	3	27	9.0	
ILLINOIS																																
CAIRO	96	995.3	1020.9	0.4	-7.5	-3.6	85.9	18.9	7	-15.0	26	0	28	-13.8	72	104	3	36	9	0	584	457	15.6	29	15.6	NW	25	11	1	19	6.5	
CHICAGO O'HARE	201	987.3	1021.3	-4.8	-13.3	-9.1	-0.0	3.9	7	-22.8	30	0	29	-13.8	72	61	-13	12	15	0	820	408	2.7	29	15.6	NW	25	11	1	19	6.5	
CHICAGO MIDWAY	185	997.3	1021.3	-4.8	-13.3	-9.1	-0.0	3.9	7	-22.8	30	0	29	-13.8	72	61	-13	12	15	0	820	408	2.7	29	15.6	NW	25	11	1	19	6.5	
HOLINE	177	1000.7	1023.7	-5.9	-15.9	-10.9	-1.1	3.9	5	-23.2	22+	0	30	-15.0	70	15	-27	13	10	0	178	127	2.9	29	15.6	NW	26+	10	6	15	6.9	
PEORIA	199	998.0	1023.4	-5.6	-13.2	-9.2	-0.8	3.9	5	-22.2	10	0	30	-15.0	69	18	-29	13	10	0	178	127	2.9	29	15.6	NW	26+	10	6	15	6.9	
ROCKFORD	221	993.9	1022.7	-6.6	-16.4	-11.5	-0.9	2.8	7	-25.0	30+	0	30	-15.4	77	20	-24	12	9	0	254	229	3.1	29	15.6	W	26	11	3	17	6.1	
SPRINGFIELD	179	1000.3	1023.8	-4.5	-13.7	-9.1	-0.2	6.7	4	-21.1	31+	0	30	-12.2	78	18	-26	12	9	0	226	152	3.0	29	20.1	W	26	6	16	6.2		



## CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1978

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation										Wind			No. of days (sunrise to sunset)		°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Station	Sea level	Average maximum		Average minimum		Average	Departure from normal		Highest	Date	No. of days	Average dew point		Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed				Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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[illegible]



## CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1978

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		Station	Sea level	Average maximum	Average minimum	Average departure from normal	Highest	Lowest	Date	Max 32.2 °C or above	Min. 0 °C or lower	Average relative humidity	Total	Departure from normal	Greatest in 24 hours				25 mm or more	No. of days	Snow, ice pellets	Total	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	(Sky cover, tenths)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
																mb	mb	°C															°C	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	mm	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s

## CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1978

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No of days (sunrise to sunset)																
		Station	Sea level	Average maximum	Average minimum	Average		Departure from normal	Highest	Lowest	Date	No. of days		Snow ice pellets	Resultant speed	Resultant direction	Speed	Direction	Date	Fastest mile (1.6 kilometers)												
						Max 32 °F or above	Min 0 °F or lower					Average relative humidity	Departure from normal								Greatest in 24 hours	25 mm or more	Total	Maximum depth on ground								
PENNSYLVANIA																																
SCRANTON	283	980.4	1015.9	-0.4	-8.1	-4.2	-0.9	16.1	9	-16.1	24	0	29	-9.4	71	135	84	48	15	0	732	432	2.1	25	17.4	5	26	2	9	20	7.8	43
WILLIAMSPORT	160	997.0	1016.7	-1.1	-9.2	-5.1	-2.4	13.3	26	-19.4	24	0	29	-10.6	67	210	140	62	15	0	986	610	2.4	28	16.1	26	26	1	12	18	7.8	
RHODE ISLAND																																
BLOCK ISLAND	34			1.6	-4.7	-1.6	-1.2	12.8	26	-10.6	10	0	29	-8.3	72	204	118	69	13	0	762	203	2.1	28	20.6	20	26	9	8	14	6.0	57
PROVIDENCE	16	1012.9	1015.0	0.6	-8.3	-3.8	-1.8	12.2	9	-13.9	11	0	31	-6.3		229	139	59	15	0	571	356	2.1	28	20.6	20	26					
SOUTH CAROLINA																																
CHARLESTON	12	1018.3	1020.4	12.3	0.4	6.4	2.8	23.3	8	-7.2	11	0	19	-0.6	67	109	36	58	10	1	0	0	1.8	27	17.9	20	25	10	3	18	6.2	70
CHARLESTON J	3			10.8	1.9	6.4	83.6	20.0	8	-4.4	11	0	14	-3.9	68	104	36	58	10	0	0	0	1.3	27	15.6	26	26	11	3	17	6.2	64
COLUMBIA	65	1011.5	1019.8	8.7	-2.8	2.9	4.3	21.1	8	-11.1	11	0	23	-5.0	68	235	148	71	10	0	0	0	1.1	32	18.8	26	26	14	3	14	5.4	59
GRUNVILLE-SPRING	792	983.4	1019.2	6.4	-2.8	1.8	-3.9	15.6	8	-10.6	29	0	24	-5.0		176	73	61	10	1	0	0	1.1	32	18.8	26	26	14	3	14	5.4	59
SOUTH DAKOTA																																
ABERDEEN	395	977.3	1028.1	-13.7	-23.7	-18.7	-6.2	-2.2	24	-34.4	10	0	31	-23.3	65	4	-10	2	6	0	74	229	2.3	33	17.0	34	25	12	7	12	5.1	
HURON	390	977.3	1027.6	-12.0	-23.5	-17.6	-6.8	-1.7	25	-32.8	11	0	31	-21.7	68	3	-8	2	5	0	107	127	1.7	31	16.1	NW	25	14	7	10	5.1	73
RAPID CITY	964	907.6	1025.0	-6.3	-17.0	-11.7	-6.1	7.8	5	-35.0	17	0	31	-16.1	68	5	-7	3	8	0	79	178	2.0	31	18.8	SW	25	7	3	10	6.9	56
SIoux FALLS	432	971.9	1027.3	-11.1	-22.4	-16.7	-6.8	-2.2	25	-31.1	17	0	31	-21.1	68	12	-3	5	8	0	193	178	2.1	31	14.8	SW	25	15	6	10	4.9	
TENNESSEE																																
BRISTOL	459	963.8	1020.2	1.4	-8.3	-3.4	-5.9	16.7	7	-21.7	11	0	28	-6.3	71	107	15	28	17	1	345	102	1.9	26	16.5	25	26	4	7	20	7.7	41
CHATTANOOGA	203	996.3	1021.8	2.9	-4.9	-0.9	-5.5	15.0	7	-13.3	20	0	28	-5.0	76	137	10	34	14	1	64	128	1.3	25	13.4	27	4	7	20	7.7	41	
KNOXVILLE	296	984.8	1021.0	2.7	-5.6	-1.4	-6.2	17.2	7	-15.2	11	0	27	-5.6	74	137	10	34	14	1	64	128	1.3	25	13.4	27	4	7	20	7.7	41	
MEMPHIS	179	1013.2	1023.9	4.1	-3.3	0.4	-8.9	21.7	7	-8.9	9	0	26	-5.1	62	203	41	38	13	0	287	102	1.5	34	13.6	30	26	7	5	19	7.2	64
NASHVILLE	180	1000.0	1022.5	1.7	-6.6	-2.4	-8.9	17.8	7	-13.9	26	0	28	-7.2	71	151	30	41	13	2	109	132	1.7	30	11.6	31	25	9	5	19	6.7	44
CAK RIDGE R	276			1.7	-6.9	-2.6	-6.0	12.8	8	-16.1	11	0	28	-7.2	71	152	15	39	15	1	328	102	1.7	30	10.7	31	25	9	5	17	6.8	
TEXAS																																
ABILENE	544	957.7	1022.6	6.6	-3.8	1.4	-5.1	22.8	6	-11.1	20	0	27	-3.9	71	16	-10	5	9	0	43	25	0.8	10	15.6	N	19	6	19	7.4	47	
AMARILLO	1098	893.3	1020.9	4.4	-7.8	-1.7	-9.9	18.9	4	-14.4	17	0	29	-8.3	68	16	-25	10	7	0	208	76	0.7	21	13.4	27	4	5	10	16	6.9	56
AUSTIN	182	1000.0	1022.9	9.3	0.3	4.8	-0.2	26.7	7	-6.1	20	0	18	-1.7	66	22	-25	10	7	0	0	0	2.7	21	13.4	NW	25	8	5	18	6.9	37
BROWNSVILLE	6	1020.0	1020.5	17.5	7.6	12.6	-3.2	29.4	6	1.1	20	0	0	8.9	83	49	15	28	12	0	0	0	4.0	34	13.4	NW	25	4	3	24	7.0	26
CORPUS CHRISTI	12	1020.0	1020.5	17.5	7.6	12.6	-3.2	29.4	6	-2.2	20	0	3	6.1	82	51	11	22	12	0	0	0	4.0	34	13.4	NW	25	5	5	21	7.6	29
DALLAS - FORT WORTH	168	1020.0	1021.6	14.4	4.7	9.6	-3.9	28.3	16	-2.2	20	0	0	8.9	83	49	11	22	12	0	0	0	4.0	34	13.4	NW	25	5	5	21	7.6	29
DEL RIO	313	984.1	1021.1	5.7	-3.7	1.0	-10.6	21.1	6	-10.6	21	0	27	-4.4	71	36	-10	13	7	0	104	0	1.3	36	13.0	34	8	9	5	17	7.3	
EL PASO	1194	893.5	1017.2	13.8	1.1	7.4	-1.0	26.1	16	-3.9	22	0	0	8	62	2	-13	1	4	0	0	0	1.3	36	13.0	34	8	9	5	17	7.3	
GALVESTON	12			13.8	1.1	7.4	-1.0	21.7	29	-4.4	26	0	15	-1.7	57	11	-1	5	7	1	0	0	0.8	25	14.3	24	15	12	8	11	5.1	77
HOUSTON INTERCON	29	1019.3	1023.0	9.0	0.7	4.9	-0.3	21.7	6	-2.2	20	0	0	1.7	83	226	149	80	16	1	0	0	1.8	14.8	NW	25	4	5	18	6.9	26	
LUBBOCK	992	906.2	1021.9	6.4	-6.3	0.4	-9.9	25.0	7	-12.8	10	0	29	-6.7	67	182	191	52	15	2	10	0	1.8	2	18.3	31	25	4	23	6	25	23
LULLENDAL	869	919.1	1019.7	9.8	-3.0	3.4	-2.1	21.1	6	-6.8	10	0	29	-5.0	60	145	91	52	15	0	145	76	0.2	15	12.5	2	16	4	19	7.4	48	
PARAN	580	952.9	1021.7	10.4	-2.7	9.6	-7.2	22.0	6	-7.8	20	0	24	-3.0	70	20	6	7	14	0	28	25	1.2	8	14.3	36	16	10	3	18	6.5	48
SAN ANTONIO	240	992.9	1021.7	19.4	-2.3	3.3	-2.8	20.0	6	-2.8	20	0	11	-2.8	79	169	66	71	14	0	28	25	1.2	8	14.3	36	16	10	3	18	6.5	48
SAN ANTONIO	240	992.9	1021.7	19.4	-2.3	3.3	-2.8	20.0	6	-2.8	20	0	22	-2.8	79	169	66	71	14	0	28	25	1.2	8	14.3	36	16	10	3	18	6.5	48
SAN ANTONIO	240	992.9	1021.7	19.4	-2.3	3.3	-2.8	20.0	6	-2.8	20	0	22	-2.8	79	169	66	71	14	0	28	25	1.2	8	14.3	36	16	10	3	18	6.5	48
SAN ANTONIO	240	992.9	1021.7	19.4	-2.3	3.3	-2.8	20.0	6	-2.8	20	0	22	-2.8	79	169	66	71	14	0	28	25	1.2	8	14.3	36	16	10	3	18	6.5	48
SAN ANTONIO	240	992.9	1021.7	19.4	-2.3	3.3	-2.8	20.0	6	-2.8	20	0	22	-2.8	79	169	66	71	14	0	28	25	1.2	8	14.3	36	16	10	3	18	6.5	48
SAN ANTONIO	240	992.9	1021.7	19.4	-2.3	3.3	-2.8	20.0	6	-2.8	20	0	22	-2.8	79																	



# CLIMATOLOGICAL DATA

## METRIC UNITS

JANUARY 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)	Possible sunshine												
		Station	Sea level	Average maximum		Average minimum		Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total				Departure from normal	Greatest in 24 hours	25 mm. or more	No. of days	Snow, ice pellets	Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)	Direction	Date		
				°C	°F	°C	°F						°C	°F																	°C	°F
								Max 32.2 °C or above	Min 0 °C or lower																							
WASHINGTON	59	1006.8	1014.0	8.8	2.1	5.4	2.6	-12.2	24	0	9	3.9	89	168	-34	21	26	0	0	0	0.7	20	11.6	20	5	1	3	27	9.1	9.1		
	59	1005.1	1012.5	9.2	2.9	6.1	2.3	-4.4	2	0	4	4.4	91	208	-163	43	24	0	0	0	1.1	8	18.0	27	21	1	3	27	9.0	9.0		
	6	997.3	1013.8	9.3	4.4	6.9	3.4	-1.7	1	0	1	2.2	74	109	-38	26	20	0	0	0	2.0	11	15.6	SW	5	1	2	28	9.1	20		
	718	931.6	1017.9	0.2	-5.1	-2.4	1.2	-23.9	1	0	27	-4.4	85	64	-2	15	19	0	485	381	1.2	7	17.9	SW	5	3	3	25	8.7	15		
	1206	875.7		-0.7	-4.4	-2.6	2.4	-14.4	2	0	31	-4.4	85	129	-199	26	24	0	1285	2057	1.2	7	17.9	SW	5	3	3	25	8.7	11		
	289			3.3	-1.1	1.1	0.3	-15.6	2	0	13	-4.4	82	61	-9	11	18	0	213	305	1.2	7	17.9	SE	5	1	2	28	9.3	11		
	321	979.0	1018.5	3.6	-2.8	0.4	2.9	-21.7	2	0	18	-2.8	82	58	25	15	20	0	76	102	1.3	29	9.4	20	5	2	4	25	8.7	8.7		
WEST INDIES	4	1015.6	1017.9	29.6	21.9	25.7	1.6	20.6	11	1	0	19.4	72	15	-79	6	11	0	0	0	11.4	9	9.4	E	25+	14	15	2	4.1	80	80	
WEST VIRGINIA	763	926.2	1019.3	-0.8	-10.1	-5.4	-5.1	-23.3	11	0	28	-8.3	84	112	24	28	18	0	803	483	2.2	26	19.7	25	26	4	2	25	8.3	8.3		
	286	964.4	1020.1	0.4	-8.9	-4.2	-5.6	-18.9	11	0	28	-8.3	76	142	56	42	24	0	1003	610	2.7	24	19.2	24	26	3	5	23	8.3	8.3		
	594	944.8		-1.1	-12.7	-6.9	-3.8	-27.8	23	0	28	-9.4	68	108	25	27	24	0	833	356	2.1	27	16.5	26	26	2	2	27	8.8	8.8		
	252	968.8	1020.1	0.3	-8.0	-3.8	-3.1	-20.6	11	0	28	-9.4	68	162	82	35	17	0	770	533	2.1	27	16.5	26	26	4	4	23	8.2	8.2		
	187			-1.0	-8.8	-4.9	-3.4	-18.9	10	0	29	-9.4	68	102	24	21	18	0	737	483	2.1	27	16.5	26	26	4	4	23	8.2	8.2		
WISCONSIN	208	993.6	1020.8	-6.9	-16.0	-11.4	-2.2	-25.6	30	0	31	-15.6	70	34	6	13	10	0	457	406	2.6	30	21.0	NW	26	10	5	16	6.2	56	56	
	198	998.3	1024.5	-8.3	-18.8	-11.1	-3.2	-27.8	30	0	31	-17.6	73	19	-5	9	9	0	264	210	2.6	30	21.0	NW	26	9	7	15	6.2	58	58	
	262	988.3	1024.9	-7.0	-18.9	-11.9	-3.2	-27.8	30	0	30	-15.6	70	26	-6	15	7	0	343	356	2.6	31	16.3	NW	26	9	7	15	6.2	58	58	
	203	994.2	1020.8	-5.6	-12.9	-9.2	-2.2	-21.1	10	0	30	-13.3	71	52	10	25	13	0	653	330	3.3	30	15.2	NW	26+	9	5	17	6.3	56	56	
WYOMING	1627	836.1	1021.0	-2.4	-14.2	-8.3	-3.4	-26.1	1	0	31	-11.7	77	18	5	7	10	0	361	127	2.7	23	15.6	22	6	5	3	23	7.5	68	68	
	1867	808.7	1019.2	0.3	-11.4	-5.5	-2.5	-26.1	24	0	31	-12.2	61	12	5	9	6	0	178	102	2.8	23	17.0	NW	13	5	7	19	7.2	57	57	
	1696	827.6	1021.4	-2.3	-13.9	-8.1	-1.2	-23.3	24	0	31	-12.2	73	15	3	8	4	0	236	203	0.4	24	15.2	SW	5	5	8	19	7.3	57	57	
	1208	879.4	1026.0	-5.4	-17.5	-11.4	-3.3	-25.6	1	0	31	-13.9	81	33	15	9	16	0	559	457	1.7	30	13.4	NW	31+	5	2	24	7.6	40	40	

## HEATING DEGREE DAYS

(Base 65°F.)

JANUARY 1978

State and Station	Current season			State and Station	Current season			State and Station	Current season			State and Station	Current season		
	This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month
ALABAMA				IDAHO				NEBRASKA				TENNESSEE			
BIRMINGHAM	967	2075	1802	BOISE	859	3017	3437	GRAND ISLAND	1692	4013	3781	BRISTOL	1207	2953	2598
HUNTSVILLE	1062	2370	2059	LEWISTON	911	3161	3269	LINCOLN	1703	4181	3688	CHATTANOOGA	1072	2422	2181
MURFEE	731	1342	1086	POCATELLO	1045	3541	4083	NORFOLK	1756	4429	4092	KNOXVILLE	1097	2480	2144
MONTCOMERY	756	1486	1467					NORTH PLATTE	1662	4357	3933	MEMPHIS	995	2071	2023
ALASKA				ILLINOIS				OMAHA	1637	3977	3589	NASHVILLE	1152	2648	2279
ANCHORAGE	1249	5954	6523	CAIRO U	1215	2690	2362	OMAHA (NORTH) WFO	1702	4211	3878	OAK RIDGE	1161	2861	2407
ANNETTE	951	4183	3965	CHICAGO D HARE	1521	3979	3729	SCOTTSDALE	1444	3877	3893				
BARRON	2202	10244	11078	CHICAGO MIDWAY	1517	3945	3513	VALENTINE	1760	4727	4196	TEXAS			
BARTER ISLAND	2095	10124	10922	MOLINE	1625	4217	3747	NEVADA				ABILENE	938	1808	1662
BETHEL	1421	6813	7567	PEORIA	1595	4093	3582	ELKO	1009	3336	4310	AMARILLO	1107	2548	2508
RETTLES	1948	8853	9921	ROCKFORD	1658	4496	3947	ELY	1101	3832	4355	AUSTIN	750	1256	1126
RIG DELTA	1728	8100	8434	SPRINGFIELD	1521	3717	3288	LAS VEGAS	522	1150	1690	BROWNSVILLE	342	608	410
COLD BAY	972	4997	5383					RENO	858	2934	3456	CORPUS CHRISTI	502	722	611
FAIRBANKS	2013	8691	8891	INDIANA				WINNEMUCCA	894	3098	3810	DALLAS FT WORTH	962	1810	1503
GULKANA	2152	8731	8627	EVANSVILLE	1377	3134	2794					DEL RIO	564	990	1061
HOMER	1097	5782	5989	FORT WAYNE	1509	3925	3568					EL PASO	603	1459	1796
JUNEAU	1233	5280	5244	INDIANAPOLIS	1443	3478	3276					GALVESTON	606	913	744
KING SALMON	1123	6481	6716	SOUTH BEND	1436	3832	3670	NEW HAMPSHIRE				HOUSTON INTERCON	752	1301	928
KODIAK	894	4995	4921					CONCORD	1466	4454	4162	LUBBOCK	1014	2078	2194
KOTZIEBIE	1012	7697	8803	IOWA				MT WASHINGTON OBS	1924	7901	7722	MIDLAND	822	1643	1692
MC GRATH	1862	8188	8834	BURLINGTON	1604	4063	3618					PORT ARTHUR	662	1111	981
NOME	1388	7026	7961	DES MOINES	1667	4151	3927	NEW JERSEY				SAN ANGELO	818	1501	1466
ST. PAUL ISLAND	968	5345	5919	DUBUQUE	1770	4831	4235	ATLANTIC CITY	1069	2777	2795	SAN ANTONIO	607	1184	1035
TALKEETNA	1455	6831	7014	SIOUX CITY	1778	4557	4106	ATLANTIC CITY U	1043	2660	2502	VICTORIA	620	975	795
UNALAKIET	1453	7525	7987	WATERLOO	1932	5131	4342	NEWARK	1168	3039	2829	WACO	839	1451	1321
VALDEZ	1181	5635	6215					TRENTON U	1134	2956	2805	WICHITA FALLS	1078	2132	1835
YAKUTAT	1208	5509	5422	KANSAS											
				CONCORDIA	1512	3614	3329	NEW MEXICO				UTAH			
ARIZONA				ODDGF CITY	1330	3084	2994	ALBUQUERQUE	870	2371	2657	HILFORD	973	3178	3747
FLAGSTAFF	1032	3207	4033	GODDARD	1431	3649	3531	CLAYTON	1148	2879	2994	SALT LAKE CITY	880	2751	3512
PHOENIX	254	451	1015	TOPEKA	1473	3479	3153	ROSWELL	895	1863	2386				
TUCSON	365	725	1095	WICHITA	1375	3036	2840					VERMONT			
WINSLOW	849	2370	2896					NEW YORK				BURLINGTON	1539	4441	4410
YUMA	241	418	692	KENTUCKY				ALBANY	1340	3870	3911				
ARKANSAS				COVINGTON	1440	3569	2972	RINGHAMTON	1415	4199	4054	VIRGINIA			
FORT SMITH	1143	2435	2108	LEXINGTON	1338	3091	2808	BUFFALO	1376	3796	3788	LYNCHBURG	1103	2791	2530
NO. LITTLE ROCK	1086		1956	LOUISVILLE	1294	3002	2770	NEW YORK U	1140	2930	2698	NORFOLK	860	2000	2016
LITTLE ROCK	1025	2209	2105					NEW YORK KENNEDY	1104	3000	2819	RICHMOND	974	2422	2363
CALIFORNIA				LOUISIANA				NEW YORK LA GUARDIA	1119	2912	2718	ROANOKE	1147	2907	2559
BAKERSFIELD	311	722	1404	BATON ROUGE	694	1281	1094	ROCHESTER	1298	3702	3703	WALLOPS ISLAND	968	2488	2363
BISHOP	796	2188	2558	LAKE CHARLES	682	1221	966	SYRACUSE	1348	3773	3688				
BLUE CANYON	841	2751	2839	NEW ORLEANS	646	1144	949					WASHINGTON			
BUREKA U	403	2313	2559	SHREVEPORT	933	1814	1396	ASHEVILLE	1101	2780	2535	OLYMPIA	711	3274	3140
FRESNO	415	1180	1641	MAINE				CAPE HATTERAS R	704	1507	1500	QUILLAYUTE	680	3277	3276
LONG BEACH	265	429	844	CARIBOU	1702	5349	5397	CHARLOTTE	862	2126	1990	SEATTLE	657	2661	2680
LOS ANGELES	195	397	902	PORTLAND	1353	4167	4134	GREENSBORO	1039	2633	2336	SEATTLE-TACOMA	631	2602	2932
LOS ANGELES U	209	406	639	MARYLAND				RALEIGH	914	2380	2146	SPOKANE	1154	4237	4026
MT SHASTA R	834	3240	3255	BALTIMORE	1101	2768	2745	WILMINGTON	709	1621	1497	STAMPEDE PASS R	1159	3363	3235
OAKLAND	334	1086	1615					NORTH DAKOTA				YAKIMA	953	2992	2946
RED BLUFF	418	1237	1612	MASSACHUSETTS				BISMARCK	2066	5854	5244				
SACRAMENTO	451	1317	1678	BLUE HILL OBS R	1278	3618	3475	FARGO	2061	5918	5374	WEST VIRGINIA	1319	3445	3268
SANDBERG R	707	1903	2248	BOSTON	1127	2966	3081	HILLISTON	2091	6045	5332	BECKLEY	1249	3028	2740
SAN DIEGO	117	209	774	WORCESTER	1359	3990	3801					CHARLESTON	1401	3721	3464
SAN FRANCISCO	381	1395	1663	MICHIGAN				OHIO	1413	3726	3528	ELKINS	1232	2973	2747
SAN FRANCISCO U	704	1340	1481	ALPENA	1506	4723	4654	CINCINNATI ABBE OB	1336	3293	2863	HUNTINGTON	1292	3102	2836
SANTA MARIA	323	1019	1596	DETROIT	1347	3531	3472	CLEVELAND	1387	3550	3434	PARKERSBURG U			
STOCKTON	449	1227	1484	DETROIT METRO	1400	3974	3624	COLUMBUS	1420	3553	3323				
COLORADO				FLINT	1444	3990	3939	DAYTON U	1428	3596	3274	WISCONSIN			
ALAMOSA	1302	4442	5048	GRAND RAPIDS	1407	4021	3809	HANSFIELD	1442	3782	3318	GREEN BAY	1658	4827	4589
COLORADO SPRINGS	1231	3463	3640	HOUGHTON LAKE	1556	4745	4648	TOLEDO	1490	4028	3656	LA CROSSE	1804	4874	4321
DENVER	1206	3275	3388	LANSING	1461	4133	3878	YOUNGSTOWN	1403	3728	3614	MADISON	1688	4812	4439
GRAND JUNCTION	1098	3041	3431	MARQUETTE U	1455	4602	4532					MILWAUKEE	1531	4306	4165
PUEBLO	1228	3226	3190	MUSKEGON	1402	4044	3787	OKLAHOMA							
				SAULT STE MARIE	1675	5294	5028	OKLAHOMA CITY	1192	2493	2283	WYOMING			
CONNECTICUT								TULSA	1236	2568	2282	CASPER	1481	4376	4227
BRIDGEPORT	1181	2900	2919	MINNESOTA								CHEYENNE	1324	4098	3993
HARTFORD	1276	3547	3600	DULUTH	1852	5840	5518	OREGON				LANDER	1466	4400	4526
				INTERNATIONAL FALLS	2126	6613	6113	ASTORIA	643	2801	2892	SHERIDAN	1654	4953	4374
DELAWARE				MINNEAPOLIS	1842	5151	4730	BURNS U	1075	3908	4133				
WILMINGTON	1165	3075	2827	ROCHESTER	1903	5206	4742	EUGENE	690	2653	2682				
				ST CLOUD	1911	5557	5136	HOPKINS	648	2476	2852				
DIST. OF COLUMBIA				MISSISSIPPI				MEADOWTON	1011	3446	3139				
WASHINGTON DULLES	1163	3034	2924	JACKSON	881	1801	1465	PORTLAND	764	2644	2748				
WASHINGTON NATIONAL	1001	2433	2481	MERIDIAN	808	1633	1547	SALEM	727	2656	2735				
FLORIDA								SEXTON SUMMIT R	832	3497	3372				
APPAACHICOLA U	597	1146	866	MISSOURI				PENNSYLVANIA							
DAYTONA BEACH	352	679	550	COLUMBIA REGIONAL	1378	3323	3027	ALLENTOWN	1238	3360	3332				
FORT MYERS	212	384	284	KANSAS CITY	1487	3568	3210	ERIE	1395	3809	3720				
JACKSONVILLE	508	1079	845	ST JOSEPH	1477	3577	3266	HARRISBURG	1196	3204	3066				
KEY WEST	92	128	34	ST LOUIS	1401	3363	2846	PHILADELPHIA	1139	3047	2789				
LAKELAND U	306	562	416	SPRINGFIELD	1396	3061	2747	PITTSBURGH	1307	3505	3418				
MIAMI	123	187	122					PITTSBURGH U	1285	3244	3038				
MIAMI GRAND	275	498	442	MONTANA	1668	4766	4132	SCRANTON	1252	3670	3580				
PENSACOLA	673	1228	1007	BILLINGS	2081	6088	5180	WILLIAMSPORT	1300	3523	3435				
TALLAHASSEE	420	1321	1019	GLASGOW	1776	5242	4330								
TAMPA	320	613	443	GREAT FALLS	1936	5582	5058	RHODE ISLAND							
WEST PALM BEACH	161	256	183	HAYRE	1485	4867	4751	BLOCK ISLAND	1104	2899	2936				
				HELENA	1397	5147	4988	PROVIDENCE	1231	3306	3278				
GEORGIA				KALISPELL	1934	5342	4599								
ATHENS	913	2063	1858	MILES CITY	1259	4587	4659	SOUTH CAROLINA							
ATLANTA	946	2162	1921	MISSOULA				CHARLESTON	663	1409	1353				
AUGUSTA	797	1743	1626					CHARLESTON U	660	1348	1177				
COLUMBUS	781	1607	1512					COLUMBIA	850	1949	1650				
MACON	754	1631	1447					GRNVILLE-SPRTNBGR	916	2105	1968				



# COOLING DEGREE DAYS

(Base 65°F.)

JANUARY 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM	0	0	9	HILLO	216	216	192	GRAND ISLAND	0	0	0	CHARLESTON	0	0	12
HUNTSVILLE	0	0	0	HONOLULU	292	292	226	LINCOLN	0	0	0	CHARLESTON U	0	0	16
MOBILE	0	0	23	KAMULUI	286	286	208	NORFOLK	0	0	0	COLUMBIA	0	0	0
MONTGOMERY	1	1	14	LIHUE	224	224	196	NORTH PLATTE	0	0	0	GRNVILLE-SPRTNBRG	0	0	0
ALASKA				IDAH0				OMAHA	0	0	0	SOUTH DAKOTA			
ANCHORAGE	0	0	0	BOISE	0	0	0	OMAHA (NORTH) WSFO	0	0	0	ABRDEEN	0	0	0
ANNETTE	0	0	0	LEWISTON	0	0	0	SCOTT'S BLUFF	0	0	0	HURON	0	0	0
BARROW	0	0	0	POCATELLO	0	0	0	VALENTINE	0	0	0	RAPID CITY	0	0	0
BARTER ISLAND	0	0	0	ILLINOIS				NEVADA				SIOUX FALLS	0	0	0
BETHEL	0	0	0	CAIRO U	0	0	0	ELKO	0	0	0	TENNESSEE			
BETTLER	0	0	0	CHICAGO U HARE	0	0	0	ELY	0	0	0	BRISTOL	0	0	0
BIG DELTA	0	0	0	CHICAGO MIDWAY	0	0	0	LAS VEGAS	0	0	0	CHATTANOOGA	0	0	0
COLD BAY	0	0	0	MOLINE	0	0	0	RENO	0	0	0	KNOXVILLE	0	0	0
FAIRBANKS	0	0	0	PEORIA	0	0	0	WINNEMUCCA	0	0	0	MEMPHIS	0	0	0
GULKANA	0	0	0	ROCKFORD	0	0	0	NEW HAMPSHIRE				NASHVILLE	0	0	0
HOMER	0	0	0	SPRINGFIELD	0	0	0	CONCORD	0	0	0	OAK RIDGE	0	0	0
JUNEAU	0	0	0	INDIANA				MT WASHINGTON OBS	0	0	0	TEXAS			
KING SALMON	0	0	0	EVANSVILLE	0	0	0	NEW JERSEY				ABILENE	0	0	0
KODIAK	0	0	0	FORT WAYNE	0	0	0	ATLANTIC CITY	0	0	0	AMARILLO	0	0	0
KOTZEBUE	0	0	0	INDIANAPOLIS	0	0	0	ATLANTIC CITY U	0	0	0	AUSTIN	5	5	8
MC GRATH	0	0	0	SOUTH BEND	0	0	0	NEWARK	0	0	0	BROWNSVILLE	32	32	79
NOME	0	0	0	IOWA				TRENTON U	0	0	0	CORPUS CHRISTI	18	18	34
ST. PAUL ISLAND	0	0	0	RURLINGTON	0	0	0	NEW MEXICO				DALLAS FT WORTH	0	0	0
TALKEETNA	0	0	0	DES MOINES	0	0	0	ALBUQUERQUE	0	0	0	DEL RIO	0	0	0
UNALAKLEET	0	0	0	DUBUQUE	0	0	0	CLAYTON	0	0	0	EL PASO	0	0	0
VALDEZ	0	0	0	SIOUX CITY	0	0	0	ROSWELL	0	0	0	GALVESTON	1	1	20
YAKUTAT	0	0	0	WATERLOO	0	0	0	NEW YORK				HOUSTON INTERCON	10	10	16
ARIZONA				KANSAS				ALBANY	0	0	0	LUBBOCK	0	0	0
FLAGSTAFF	0	0	0	CONCORDIA	0	0	0	BINGHAMTON	0	0	0	MIDLAND	0	0	0
PHOENIX	3	3	0	ODDGE CITY	0	0	0	BUFFALO	0	0	0	PORT ARTHUR	11	11	17
TUCSON	0	0	0	GOODLAND	0	0	0	NEW YORK U	0	0	0	SAN ANGELO	0	0	0
WINSLOW	0	0	0	TOPEKA	0	0	0	NEW YORK KENNEDY	0	0	0	SAN ANTONIO	3	3	8
YUMA	0	0	10	WICHITA	0	0	0	NEW YORK LA GUARDIA	0	0	0	VICTORIA	10	10	16
ARKANSAS				KENTUCKY				ROCHESTER	0	0	0	WACO	2	2	0
FORT SMITH	0	0	0	COVINGTON	0	0	0	SYRACUSE	0	0	0	WICHITA FALLS	0	0	0
ND. LITTLE ROCK	0	0	0	LEXINGTON	0	0	0	NORTH CAROLINA				UTAH			
LITTLE ROCK	0	0	0	LOUISVILLE	0	0	0	ASHEVILLE	0	0	0	MILFORD	0	0	0
CALIFORNIA				LOUISIANA				CAPE HATTERAS R	0	0	0	SALT LAKE CITY	0	0	0
BAKERSFIELD	0	0	0	BATON ROUGE	8	8	17	CHARLOTTE	0	0	0	VERMONT			
BISHOP	0	0	0	LAKE CHARLES	5	5	21	GREENSBORO	0	0	0	BURLINGTON	0	0	0
BLUE CANYON	0	0	0	NEW ORLEANS	5	5	28	RALEIGH	0	0	0	VIRGINIA			
EUREKA U	0	0	0	SHREVEPORT	5	5	0	WILMINGTON	0	0	9	LYNCHBURG	0	0	0
FRESNO	0	0	0	MAINE				NORTH DAKOTA				NORFOLK	0	0	0
LONG BEACH	0	0	5	CARIBOU	0	0	0	BISMARCK	0	0	0	RICHMOND	0	0	0
LOS ANGELES	0	0	10	PORTLAND	0	0	0	FARGO	0	0	0	ROANOKE	0	0	0
LOS ANGELES U	0	0	0	BALTIMORE	0	0	0	WILLISTON	0	0	0	WALLOPS ISLAND	0	0	0
MT. SHASTA R	0	0	0	MASSACHUSETTS				OHIO				WASHINGTON			
OAKLAND	0	0	0	BLUE HILL OBS R	0	0	0	AKRON	0	0	0	OLYMPIA	0	0	0
RED BLUFF	0	0	0	BOSTON	0	0	0	CINCINNATI ABBE OB	0	0	0	QUILLAYUTE	0	0	0
SACRAMENTO	0	0	0	WORCESTER	0	0	0	CLEVELAND	0	0	0	SEATTLE	0	0	0
SANDBERG R	0	0	0	MICHIGAN				COLUMBUS	0	0	0	SEATTLE-TACOMA	0	0	0
SAN DIEGO	1	1	10	ALPENA	0	0	0	DAYTON	0	0	0	SPokane	0	0	0
SAN FRANCISCO	0	0	0	DETROIT	0	0	0	MANSFIELD	0	0	0	STAMPEDE PASS R	0	0	0
SAN FRANCISCO U	0	0	0	DETROIT METRO	0	0	0	TOLEDO	0	0	0	WALLA WALLA U	0	0	10
SANTA MARIA	0	0	0	FLINT	0	0	0	YOUNGSTOWN	0	0	0	YAKIMA	0	0	0
STOCKTON	0	0	0	GRAND RAPIDS	0	0	0	OKLAHOMA				WEST INDIES			
COLORADO				HOUGHTON LAKE	0	0	0	OKLAHOMA CITY	0	0	0	SAN JUAN P.R.	420	420	322
ALAMOSA	0	0	0	LANSING	0	0	0	TULSA	0	0	0	WEST VIRGINIA			
COLORADO SPRINGS	0	0	0	MARQUETTE U	0	0	0	OREGON				BECKLEY	0	0	0
DENVER	0	0	0	MUSKOGON	0	0	0	ASTORIA	0	0	0	CHARLESTON	0	0	0
GRAND JUNCTION	0	0	0	SAULT STE MARIE	0	0	0	BURNS U	0	0	0	ELKINS	0	0	0
PUEBLO	0	0	0	MINNESOTA				EUGENE	0	0	0	HUNTINGTON	0	0	0
CONNECTICUT				DULUTH	0	0	0	MEDFORD	0	0	0	PARKERSBURG U	0	0	0
BRIDGEPORT	0	0	0	INTERNATIONAL FALLS	0	0	0	PENDLETON	0	0	0	WISCONSIN			
HARTFORD	0	0	0	MINNEAPOLIS	0	0	0	PORTLAND	0	0	0	GREEN BAY	0	0	0
DELAWARE				ROCHESTER	0	0	0	SALEM	0	0	0	LA CROSSE	0	0	0
WILMINGTON	0	0	0	ST CLOUD	0	0	0	SEXTON SUMMIT R	0	0	0	MADISON	0	0	0
DIST. OF COLUMBIA				MISSISSIPPI				PACIFIC AREA				MILWAUKEE	0	0	0
WASHINGTON DULLES	0	0	0	JACKSON	2	2	14	GUAM TAGUAC R	368	368	381	WYOMING			
WASHINGTON NATIONAL	0	0	0	MERIDIAN	1	1	14	JOHNSTON	391	391	366	CASPER	0	0	0
FLORIDA				MISSOURI				KORDR R	513	513	502	CHEYENNE	0	0	0
APPALACHICOLA U	0	0	18	COLUMBIA REGIONAL	0	0	0	KWAJALEIN	525	525	502	LANDER	0	0	0
DAYTONA BEACH	14	14	37	KANSAS CITY	0	0	0	MAJURO	508	508	490	SHERIDAN	0	0	0
FORT MYERS	39	39	81	ST JOSEPH	0	0	0	AGO PAGO	501	501	474				
JACKSONVILLE	5	5	23	ST LOUIS	0	0	0	POHAPPE R	508	508	484				
KEY WEST	75	75	193	SPRINGFIELD	0	0	0	TRUK MOEN ISLAND	514	514	498				
LAKELAND U	17	17	58	MONTANA				WAKE	374	374	372				
LAKELAND U	97	97	121	BILLINGS	0	0	0	YAP R	476	476	477				
MIAMI	26	26	52	GLASGOW	0	0	0	PENNSYLVANIA							
ORLANDO	0	0	27	GREAT FALLS	0	0	0	ALLENTOWN	0	0	0				
PENSACOLA	0	0	23	HAVRE	0	0	0	ERIE	0	0	0				
TALLAHASSEE	0	0	23	MELENA	0	0	0	HARRISBURG	0	0	0				
TAMPA	18	18	60	KALISPELL	0	0	0	PHILADELPHIA	0	0	0				
WEST PALM BEACH	78	78	98	MILES CITY	0	0	0	PITTSBURGH	0	0	0				
GEORGIA				MISSOULA	0	0	0	SCRANTON	0	0	0				
ATHENS	0	0	0					WILLIAMSPORT	0	0	0				
ATLANTA	0	0	0					RHODE ISLAND							
AUGUSTA	0	0	6					BLOCK ISLAND	0	0	0				
COLUMBUS	0	0	10					PROVIDENCE	0	0	0				
MACON	0	0	10												
ROME	0	0	0												
SAVANNAH	0	0	15												

# STORM SUMMARY

JANUARY 1978

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ALL OTHER				
	NUMBER	DAYS	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS					
Alabama										1		5						2									4	1	5	
Alaska																													5	5
Arizona												4				3														
Arkansas	5	1	1	9	6			4	4									11	?	7	8							?		
California	1	1																												
Colorado	*											4						1	4	7				4					5	
Connecticut												5								3				3						
Delaware												5																		
Florida	11	4		27	6						2	5	5																6	
Georgia											3	6	4											4		3				
Hawaii																										1	1	4		
Idaho	*																													
Illinois																		2		?							1			
Indiana																		11	?	9	C									
Iowa										1	1	3																		
Kansas	*																													
Kentucky																		5	?	7	6									
Louisiana	1	1		3				3	3			6				4														
Maine												7								4										
Maryland & DC												6								5							2	1	6	
Massachusetts												5																	6	
Michigan																		7		7	7									
Minnesota																		1		1										
Mississippi												3													2	?		1		
Missouri																				3						2	?			
Montana	*																													
Nebraska	*																													
Nevada	*																													
New Hampshire										1	5	6																		
New Jersey												?						2		4	?					?				
New Mexico																														
New York																														
North Carolina	1	1		4						1	?	5								?	6	3		?	5			5		5
North Dakota												7																		
Ohio												6				4		2		?	9	8								
Oklahoma	*																													
Oregon												?	?								?	?	5		?	5	?			
Pacific																														
Pennsylvania																														
Puerto Rico	*									1	?	8								?	8					6			5	
Rhode Island																													6	
South Carolina																														
South Dakota										5	3	6	2																	
Tennessee	2	1		5														1		?										
Texas												4								5	5		1	1	4	5	5			
Utah	*																													
Vermont																														
Virginia	2	1	1	10	5							5								?	5	4			?	5			4	
Virgin Islands	*											6								1	5					5			6	
Washington	*																													
West Virginia																											1	2	7	
Wisconsin												5																		
Wyoming	*																													



## Average monthly values

ALBANY, NY 1005 MA										ALBUQUERQUE, NM -138 -8										AMARILLO, TX 893 MA										ANCHORAGE, AK 1004 MB										ANNETTE, AK 1011 MB									
Standard pressure surface mb		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind									
										Direction tens of deg		Speed m p s								Direction tens of deg		Speed m p s						Direction tens of deg		Speed m p s						Direction tens of deg		Speed m p s											
500	31	86	-7.9	-11.3	24	1.1	1,615	-0.5	-3.6	03	31	1,095	-5.9	-10.3	19	1,200	-4.5	-8.1	-2	1,2	34	37	.5	-3.7	08	1.9																							
1000	21	10	-8.0	-11.0	24	1.4										10	157	-6.4	-9.1	-2	2,3	24	137	1.2	-5.2	07	1.8																						
950	31	522	-8.0	-10.3	27	3.3										29	496	-6.0	-7.9	24	1,7	31	533	-5.5	-8.8	11	3.4																						
900	31	941	-9.5	-11.3	27	5.1										29	496	-6.0	-7.9	24	1,7	31	533	-5.5	-8.8	11	3.4																						
850	31	1,382	-10.0	-13.2	28	6.8										29	496	-6.0	-7.9	24	1,7	31	533	-5.5	-8.8	11	3.4																						
800	31	1,850	-10.4	-14.4	24	10.1	31	1,989	-0.6	-9.5	30	2,7	31	1,905	-0.7	-10.1	28	5.4	29	1,855	-7.1	-11.0	14	8.2	31	1,892	-6.1	-13.2	10	3.3																			
750	31	2,346	-11.3	-16.7	28	11.9	31	2,505	-1.9	-8.6	29	6,3	31	2,482	-0.5	-11.7	28	7.5	29	2,356	-9.4	-13.6	15	8.1	31	2,395	-8.1	-16.8	18	2.4																			
700	31	2,874	-13.2	-19.2	27	14.1	31	3,051	-0.7	-12.6	29	10.0	31	3,031	-3.2	-15.9	28	9.5	29	2,887	-12.5	-17.2	10	7.3	31	2,929	-10.8	-20.6	19	1.9																			
650	31	3,437	-14.7	-21.4	27	15.6	31	3,631	-7.9	-15.4	29	12.1	31	3,614	-6.9	-19.8	28	10.6	29	3,450	-15.7	-20.9	17	6.9	31	3,495	-13.9	-24.5	21	2.1																			
600	31	4,000	-17.6	-25.1	27	17.2	31	4,250	-11.0	-21.1	29	13.4	31	4,234	-10.7	-22.6	28	12.7	29	4,049	-19.4	-24.5	17	8.0	31	4,099	-17.4	-27.9	21	2.8																			
550	31	4,687	-21.5	-29.2	27	19.7	31	4,931	-15.1	-23.9	29	16.9	31	4,897	-15.0	-27.1	28	15.3	29	4,678	-24.1	-29.2	17	8.0	31	4,746	-21.2	-32.2	25	1.8																			
500	31	5,384	-25.7	-34.2	27	22.3	31	5,628	-18.3	-31.1	28	18.5	31	5,611	-20.1	-31.0	28	18.2	29	5,378	-28.1	-33.5	18	7.5	31	5,442	-25.6	-36.4	26	2.7																			
450	31	6,141	-30.3	-39.4	26	24.1	31	6,401	-25.3	-33.1	28	18.8	31	6,384	-25.7	-36.6	28	19.0	29	6,123	-34.4	-44.3	18	7.2	31	6,195	-32.0	-44.7	25	4.4																			
400	31	6,969	-36.2	-44.0	26	25.8	31	7,245	-31.5	-42.7	28	20.5	31	7,220	-32.1	-42.0	28	20.6	29	6,935	-40.7	-44.4	18	7.1	31	7,016	-38.3	-45.6	25	5.2																			
350	31	7,895	-42.7	-41.7	26	26.6	31	8,180	-38.5	-45.3																																							

ATHENS, GA										RAPPOW, AK										BAXTER ISLAND, AK										RETHEL, AK										RISACKY, ND									
989 MB										1020 MB										1019 MB										999 MB										964 MB									
5FC	31	240	-1.4	-4.9	30	2.0	27	6	-21.4	-23.8	07	3.1	30	15	-18.6	-21.6	09	2.2	31	39	-8.4	-9.9	26	4.4	31	503	-20.3	-25.6	33	1.6																			
1000																																																	
950	31	569	-1.0	-7.4	20	4.1	27	54.8	-17.0	-18.5	09	4.4	28	102	-10.1	-18.3	09	4.8	17	100	-3.1	-4.3	28	4.3																									
900	31	1000	-2	-8.5	20	4.1	27	54.8	-17.0	-18.5	10	5.1	30	54.1	-11.3	-17.7	11	3.7	31	646	-1.2	-4.2	28	6.4	31	610	-19.2	-22.2	33	2.2																			
850	31	1459	-2	-9.0	28	1.0	27	1.407	-9.5	-19.4	10	3.0	30	1.400	-9.5	-20.2	17	1.3	31	1.923	-1.4	-7.8	28	6.2	31	1.455	-17.2	-19.2	31	4.8																			
800	31	1944	-1.2	-12.0	28	12.2	27	1.874	-11.0	-21.8	10	1.8	30	1.868	-11.0	-21.1	25	0.9	31	1.798	-6.9	-1.3	15	7.0	31	1.914	-11.5	-19.0	32	6.8																			
750	31	2458	-2.7	-15.1	27	14.8	27	2.364	-13.4	-24.6	07	9.3	30	2.361	-13.2	-23.4	30	1.3	31	2.299	-9.6	-16.7	15	8.0	31	2.408	-13.2	-21.6	32	7.9																			
700	31	3003	-5.1	-17.0	27	17.8	27	2.890	-16.3	-26.9	26	9.3	30	2.884	-10.6	-25.0	30	2.1	31	2.829	-17.4	-19.4	15	8.0	31	2.931	-15.5	-23.9	32	9.2																			
650	31	3582	-7.6	-19.1	27	24.3	27	3.444	-19.7	-29.8	27	2.0	30	3.439	-19.1	-29.7	30	3.1	31	3.392	-16.4	-23.6	15	7.8	31	3.488	-17.8	-27.8	31	11.3																			
600	31	4202	-10.8	-22.6	27	24.3	27	4.033	-23.3	-32.9	27	4.0	30	4.026	-22.2	-32.5	30	4.1	31	3.990	-20.7	-28.1	14	7.7	31	4.089	-20.7	-31.6	31	13.0																			
550	31	4880	-13.7	-25.0	27	24.8	27	4.626	-26.3	-36.4	27	5.2	30	4.604	-26.0	-36.5	30	6.8	31	4.592	-23.7	-32.7	15	7.8	31	4.723	-23.7	-34.5	31	15.0																			
500	31	5582	-19.2	-30.3	27	30.2	27	5.345	-31.7	-40.3	27	6.0	30	5.346	-31.3	-40.5	30	6.9	31	5.314	-29.4	-37.2	15	8.3	31	5.412	-28.4	-38.2	31	17.5																			
450	31	6357	-24.4	-36.5	27	30.9	27	6.082	-37.1	-42.3	26	6.8	30	6.084	-36.6	-44.4	29	8.4	31	6.058	-35.4	-42.2	15	8.8	31	6.160	-33.3	-43.7	31	20.1																			
400	31	7205	-30.5	-41.6	26	33.8	27	6.886	-43.2		27	7.5	30	6.890	-42.5	-46.5	29	10.3	31	6.868	-41.7	-45.0	16	9.3	31	6.978	-39.2	-46.6	31	22.1																			
350	31	8144	-37.2	-46.7	26	37.2	27	7.775	-44.9		27	9.5	30	7.782	-42.8		28	9.7	31	7.763	-47.9		16	10.6	31	7.883	-45.7		31	23.5																			
300	31	9110	-44.9			40.3	25	8.763	-50.2		27	10.6	30	8.777	-54.8		28	11.8	31	8.7																													

BOISE, ID 917 MB												BOTHAMVILLE, LA 1021 MB												BOTHAMVILLE, TX 1019 MB												BOFFALO, NY 988 MB												CAPE HATTERAS, NC 1018 MB											
SPC	31	871	1.7	-2.4	13	1.3	31	1	7.1	4.3	30	2.8	31	7	10.3	8.5	35	2.7	30	218	-7.7	-9.8	24	2.2	31	4	4.0	.9	30	2.4																													
1000									175	7.4	3.9	21	2.6	31	165	11.4	8.6	01	2.6						29	160	4.2	-1.3	31	3.6																													
950									394	4.8	.8	31	1.2	31	596	12.1	6.0	09	2.6	29	536	-8.5	-10.6	26	4.4	31	564	2.8	-3.8	26	7.1																												
900	3n	1.023	1.8	-2.4	13	1.3	31	1.040	6.2	-2.5	28	4.3	31	1.048	10.7	5.9	16	3.5	30	941	-9.8	-11.8	26	5.0	31	1.000	1.6	-7.5	26	10.0																													
850	31	1.478	.5	-3.3	15	2.2	31	1.504	5.6	-4.5	28	7.4	31	1.524	9.2	3.9	21	5.2	30	1.381	-10.7	-12.8	27	6.8	31	1.400	.3	-11.0	26	12.8																													
800	31	1.952	-1.8	-3.8	22	2.5	31	2.006	4.5	-9.0	28	10.0	31	2.026	7.7	-1.3	23	6.6	30	1.847	-11.4	-17.1	28	8.1	31	1.945	-1.4	-14.8	23	14.7																													
750	31	2.474	-4.7	-4.5	22	2.9	31	2.524	2.5	-9.2	27	12.7	31	2.557	6.6	-9.0	25	7.1	30	2.341	-12.9	-19.7	28	9.0	31	2.458	-2.8	-17.2	25	0.0																													
700	31	2.947	-7.7	-13.1	18	3.3	31	3.004	1.9	-12.9	27	14.6	31	3.120	3.9	-13.6	05	28	10.1	3.3	-21.9	28	10.1	31	3.045	1.7	-20.2	25	0.0																														
650	31	3.459	-10.4	-17.3	22	3.8	31	3.674	-3.1	-16.2	27	16.6	31	3.719	4.4	-17.1	27	11.8	30	3.425	-16.3	-24.0	28	10.9	31	3.582	-7.8	-21.9	25	21.6																													
600	31	4.223	-13.8	-21.6	20	4.8	31	4.303	-5.9	-20.2	27	18.5	31	4.436	-3.9	-20.5	27	13.4	30	4.325	-18.7	-26.1	27	11.4	31	4.201	-10.9	-23.8	26	23.8																													
550	31	4.859	-18.0	-26.0	22	10.3	31	4.977	-11.0	-24.7	27	20.7	31	5.036	-8.6	-23.8	27	15.5	30	4.959	-21.8	-30.8	27	12.5	31	4.804	-15.1	-28.3	26	27.3																													
500	31	5.505	-22.9	-29.6	22	11.8	31	5.702	-12.8	-28.4	27	23.3	31	5.769	-13.4	-28.6	27	19.7	30	5.305	-26.1	-34.4	26	13.4	31	5.579	-19.7	-32.5	26	30.3																													
450	31	6.329	-28.3	-33.9	22	14.3	31	6.480	-21.2	-32.4	26	26.5	31	6.503	-18.3	-32.7	27	24.6	30	6.120	-31.2	-37.8	26	15.0	31	6.352	-24.8	-36.9	26	32.4																													
400	31	7.133	-34.3	-40.9	22	15.6	31	7.344	-26.8	-33.6	27	31.4	31	7.431	-24.7	-37.6	27	28.4	30	6.944	-37.4	-42.8	26	15.9	31	7.149	-30.0	-40.7	26	36.0																													
350	31	8.008	-41.5	-44.3	22	18.7	31	8.301	-33.7	-42.7	26	35.3	31	8.392	-31.1	-43.9	27	31.8	30	7.801	-43.4	-48.8	26	18.9	31	8.048	-37.4	-46.3	27	38.0																													
300	31	8.941	-48.8	-51.6	22	19.9	31	9.244	-39.4	-49.9	26	38.3	31																																														



# RAWINSONDE DATA

Average monthly values

JANUARY 1978

CHATHAM, GA 1013 MB										CHIHUAHUA, MEXICO 850 MB									
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m/s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m/s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m/s	No of observations
500	31	9.1	-13.8	-19.1	28	2.0	30	1.3	2.8	-1.2	29	1.8	31	1.6	-1.8	-5.5	23	1.2	31
1000	31	2.9	-18.6	-24.1	25	3.3	30	1.9	4.6	-1.4	30	2.2	25	1.6	-3.3	-7.8	31	2.9	31
950	31	4.39	-13.1	-16.1	25	3.3	30	2.6	3.6	-3.7	27	4.7	31	5.21	-3.6	-6.8	24	4.7	31
900	31	9.11	-13.5	-17.0	28	4.4	30	5.8	3.7	-7.8	25	7.7	31	9.47	-5.4	-9.0	24	6.1	31
850	31	14.36	-14.2	-18.8	27	5.0	30	8.9	3.6	-7.5	26	10.7	31	13.95	-6.2	-11.0	24	9.4	31
800	31	18.10	-14.7	-20.5	27	5.0	30	11.4	3.7	-11.4	26	12.6	31	18.69	-7.7	-13.8	25	12.7	31
750	31	22.83	-15.9	-21.6	28	5.7	30	14.0	3.7	-13.6	26	15.3	31	23.70	-9.2	-16.8	25	15.0	31
700	31	28.41	-17.2	-23.3	28	6.3	30	19.31	3.4	-14.0	26	21.4	31	29.93	-10.8	-19.3	25	17.3	31
650	31	34.68	-18.4	-25.1	26	6.4	30	26.31	3.7	-19.2	28	28.1	31	36.47	-13.1	-21.6	25	19.2	31
600	31	41.56	-21.0	-28.1	26	6.7	30	33.01	3.7	-21.9	27	35.0	31	43.77	-16.4	-25.2	25	21.0	31
550	31	49.01	-24.1	-31.1	26	7.0	30	40.71	3.7	-26.0	27	42.8	31	50.72	-19.9	-28.9	25	23.1	31
500	31	57.21	-27.9	-34.9	26	7.3	30	49.11	3.7	-30.5	27	51.3	31	60.23	-24.3	-34.6	25	24.2	31
450	31	66.41	-32.8	-39.0	26	7.6	30	58.91	3.7	-35.7	26	61.3	31	70.18	-29.5	-38.9	25	25.3	31
400	31	76.88	-38.2	-42.7	26	7.9	30	69.81	3.7	-40.6	27	72.8	31	81.88	-35.3	-43.5	25	27.5	31
350	31	88.70	-44.7	-48.8	26	8.2	30	82.21	3.6	-44.9	26	86.2	31	93.99	-41.4	-46.0	25	28.5	31
300	31	101.93	-51.2	-55.3	26	8.5	30	96.61	3.7	-50.6	26	101.3	31	108.96	-48.2	-53.0	25	30.0	31
250	31	116.57	-58.5	-62.6	26	8.8	30	112.81	3.6	-57.2	27	118.6	31	128.15	-55.4	-60.1	25	33.8	31
200	31	132.77	-64.3	-68.4	26	9.1	30	130.91	3.6	-64.3	27	137.8	31	148.59	-61.1	-66.3	25	36.5	31
175	31	152.34	-63.9	-68.0	26	9.4	30	151.41	3.6	-68.0	27	159.2	31	170.11	-55.4	-60.1	25	39.3	31
150	31	174.34	-64.3	-68.4	26	9.7	30	173.41	3.6	-68.4	27	181.9	31	193.55	-60.1	-65.3	25	42.0	31
125	31	200.34	-64.3	-68.4	26	10.0	30	200.31	3.6	-68.4	27	209.1	31	221.55	-64.3	-69.5	25	44.7	31
100	31	230.34	-64.3	-68.4	26	10.3	30	230.31	3.6	-68.4	27	240.1	31	262.55	-64.3	-69.5	25	47.4	31
75	31	264.34	-64.3	-68.4	26	10.6	30	264.31	3.6	-68.4	27	275.1	31	305.55	-64.3	-69.5	25	50.1	31
50	31	302.34	-64.3	-68.4	26	10.9	30	302.31	3.6	-68.4	27	316.1	31	350.55	-64.3	-69.5	25	52.8	31
25	31	344.34	-64.3	-68.4	26	11.2	30	344.31	3.6	-68.4	27	360.1	31	399.55	-64.3	-69.5	25	55.5	31
0	31	390.34	-64.3	-68.4	26	11.5	30	390.31	3.6	-68.4	27	407.1	31	451.55	-64.3	-69.5	25	58.2	31

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EL PASO, TX 893 MB										FAIRBANKS, AK 998 MB										FLINT, MI 987 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
STC	31	1493	341	-340	27	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	31	1493	341	-340	27	340	3



## Average monthly values

GLASGOW, MT 940' 4R										GRAND JUNCTION, CO 854' -8										GREAT FALLS, MT 920' 4R										GREEN HAY, MT 991' 2R										GREENSBORO, NC 980' 8R									
Standard pressure surface mb.		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C +		Resultant Wind									
				Direction tens of deg		Speed m p s										Direction tens of deg		Speed m p s								Direction tens of deg		Speed m p s						Direction tens of deg		Speed m p s													
500	31	696	-19.8	-23.3	06	1.7	31	1.477	-3.2	-5.1	06	4	31	1.118	-13.0	-17.1	22	1.4	31	210	-12.9	-15.8	30	2.7	31	210	-12.9	-15.8	30	2.7	31	275	-3.8	-7.5	29	1.7													
1000	31	1000	-14.8	-17.7	30	1.2	22	1.528	-3.4	-5.4	07	4	31	1.466	-10.0	-14.0	25	4.3	31	550	-11.0	-13.4	32	5.4	30	567	-2.4	-10.2	29	4.0																			
950	31	1021	-14.8	-17.7	30	1.2	22	1.528	-3.4	-5.4	07	4	31	1.466	-10.0	-14.0	25	4.3	31	550	-11.0	-13.4	32	5.4	30	567	-2.4	-10.2	29	4.0																			
900	31	1047	-11.1	-17.3	30	1.2	22	1.528	-3.4	-5.4	07	4	31	1.466	-10.0	-14.0	25	4.3	31	550	-11.0	-13.4	32	5.4	30	567	-2.4	-10.2	29	4.0																			
850	31	1074	-11.1	-17.3	30	1.2	22	1.528	-3.4	-5.4	07	4	31	1.466	-10.0	-14.0	25	4.3	31	550	-11.0	-13.4	32	5.4	30	567	-2.4	-10.2	29	4.0																			
800	31	1094	-10.0	-17.7	30	1.2	22	1.528	-3.4	-5.4	07	4	31	1.466	-10.0	-14.0	25	4.3	31	550	-11.0	-13.4	32	5.4	30	567	-2.4	-10.2	29	4.0																			
750	31	1124	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.3	12	5.1	31	1.937	-6.7	-11.2	26	5.9	31	706	-12.8	-22.6	33	6.1	30	727	-5.7	-17.3	28	11.0																			
700	31	1154	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.3	12	5.1	31	1.937	-6.7	-11.2	26	5.9	31	706	-12.8	-22.6	33	6.1	30	727	-5.7	-17.3	28	11.0																			
650	31	1184	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.3	12	5.1	31	1.937	-6.7	-11.2	26	5.9	31	706	-12.8	-22.6	33	6.1	30	727	-5.7	-17.3	28	11.0																			
600	31	1214	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.3	12	5.1	31	1.937	-6.7	-11.2	26	5.9	31	706	-12.8	-22.6	33	6.1	30	727	-5.7	-17.3	28	11.0																			
550	31	1244	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.3	12	5.1	31	1.937	-6.7	-11.2	26	5.9	31	706	-12.8	-22.6	33	6.1	30	727	-5.7	-17.3	28	11.0																			
500	31	1274	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.3	12	5.1	31	1.937	-6.7	-11.2	26	5.9	31	706	-12.8	-22.6	33	6.1	30	727	-5.7	-17.3	28	11.0																			
450	31	1304	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.3	12	5.1	31	1.937	-6.7	-11.2	26	5.9	31	706	-12.8	-22.6	33	6.1	30	727	-5.7	-17.3	28	11.0																			
400	31	1334	-11.3	-20.2	31	1.8	31	2.486	-4.5	-9.																																							

GUADALUPE IS., MEXICO 1013 MB											GUAM, MARIANA IS. 1011 MB											HILO, HI 1016 MB											HUNTERTON, WV 990 MB											INTERNATIONAL FALLS, MN 979 MB										
SFC	26	23	10.3	12.5	32	2.7	31	111	230.9	20.6	07	4.1	31	10	19.0	10.5	25	1.8	29	266	-6.5	-17.4	25	2.0	31	359	-21.4	-20.8	31	1.1																								
1000	26	152	15.5	11.4	31	4.3	21	124	24.4	20.1	07	4.6	31	145	20.6	10.3	27	1.3																																				
950	26	580	13.3	6.3	30	4.1	31	565	21.0	18.7	07	9.5	31	587	17.6	15.0	05	1.1	29	569	-6.0	-8.7	25	4.9	31	577	-18.3	-20.0	32	2.9																								
900	26	1040	11.8	4.2	29	5.1	31	1032	14.7	15.2	07	9.2	31	1048	11.1	11.3	08	1.7	29	991	-7.4	-11.3	26	7.1	31	983	-15.4	-18.5	32	4.0																								
850	26	1517	10.5	-5.2	28	4.9	31	1522	10.0	10.8	08	8.0	31	1531	12.8	6.2	09	1.3	29	1437	-7.4	-14.7	26	9.5	31	1415	-15.0	-20.8	32	4.9																								
800	26	2020	8.1	-7.7	28	5.3	31	2038	15.1	-1.3	08	7.1	31	2038	11.3	-1.2	09	6.2	28	1908	-14.8	-14.8	27	11.5	31	1911	-15.5	-22.2	32	4.9																								
750	26	7551	9.9	-10.5	27	7.7	31	7585	9.9	-32.2	08	6.1	31	7578	-16.7	-16.7	27	7.7	29	7408	-9.3	-15.9	27	13.2	31	7360	-21.0	-25.9	31	6.8																								
700	26	3412	2.6	-13.4	27	8.1	31	3465	11.8	-9.7	08	6.8	31	3449	7.8	-12.1	31	1.3	28	2949	-11.3	-17.9	27	14.2	31	2876	-10.6	-25.4	31	7.8																								
650	26	34708	-1.1	-16.0	26	10.1	31	3780	8.0	-12.5	08	6.5	31	3756	4.4	-10.6	30	2.8	28	3506	-13.7	-22.2	28	15.5	31	3426	-21.2	-28.0	31	9.1																								
600	26	4341	-5.1	-20.1	27	12.0	31	4436	4.2	-16.7	08	6.0	31	4403	7	-20.2	30	4.2	28	4111	-16.7	-26.4	27	17.1	31	4014	-24.0	-30.8	31	10.0																								
550	26	5019	-9.6	-24.5	27	13.9	31	5138	1.1	-20.0	08	5.6	31	5096	-3.5	-23.2	29	7.1	28	4760	-20.4	-30.1	27	19.5	31	4644	-27.8	-34.6	31	10.9																								
500	26	5468	-14.6	-28.3	27	13.8	31	5895	-4.6	-23.4	08	5.4	31	5843	-5.6	-27.2	29	8.8	28	5460	-24.3	-34.4	27	21.9	31	5323	-31.9	-38.7	31	11.6																								
450	26	6538	-20.3	-32.9	26	15.3	31	6717	-3.4	-29.0	09	4.9	31	6652	-13.6	-31.3	29	11.5	28	6220	-29.9	-39.4	27	24.5	31	6081	-36.6	-44.5	31	12.9																								
400	26	6464	-24.6	-37.7	27	16.3	31	7188	-1.8	-29.0	09	4.6	31	7337	-1.2	-36.4	30	15.2	28	7081	-35.1	-45.9	27	26.8	31	6926	-42.2	-49.5	31	13.9																								
350	26	8356	-33.6	-43.3	26	22.1	31	8618	-21.9	-39.0	10	3.4	31	8520	-25.7	-44.0	30	20.7	27	7989	-65.2	-65.2	27	29.6	31	7761	-63.5	-70.3	30	14.4																								
300	26	9415	-41.7	-47.7	26	27.9	31	9731	-30.3	-46.0	10	2.1	31	9617	-33.5	-46.7	29	21.8	27	8998	-67.7	-67.7	27	35.2	31	8761	-53.9	-60.3	30	15.3																								
250	26	10629	-49.3		26	36.0	31	11001	-40.5	-54.0	14	1.1	31	10873	-42.2	-53.6	30	24.5	27	10189	-52.2	-52.2	27	37.0	31	9924	-56.2	-62.6	30	16.9																								
200	26	12072	-54.9		27	39.3	31	12482	-52.7		16	3.8	31	12351	-51.9		30	24.9	24	11618	-52.9	-52.9	27	35.6	31	11352	-53.1	-59.1	30	18.5																								
175	26	12920	-57.9		27	36.1	31	13331	-59.6		15	5.5	31	13205	-57.7		29	23.8	23	10484	-52.8	-52.8	27	35.1	31	12215	-52.1	-58.4	30	18.8																								
150	26	13884	-61.1		27	24.9	31	14277	-67.3		14	6.3	31	14162	-64.5		29	21.0	23	13476	-54.0	-54.0	27	31.2	31	12414	-52.0	-58.4	30	19.2																								
125	26	15005	-65.3		27	22.6	31	15358	-75.5		13	8.1	31	15258	-71.6		29	19.5	21	14339	-56.2	-56.2	27	29.8	31	14494	-52.7	-58.5	30	19.9																								
100	26	16344	-70.3		27	19.4	31	16821	-86.3		12	10.0	30	16556	-77.7		29	18.0	20	16066	-59.4	-59.4	26	26.2	31	15828	-52.7	-58.5	30	17.8																								
75	26	17668	-70.8		27	12.4	31	17858	-84.5		11	9.1	29	17826	-79.3		30	7.5	19	17433	-61.7	-61.7	27	20.1	31	17250	-56.3	-62.6	31	17.7																								
70	18	18457	-70.2		27	8.9	29	18605	-79.3		10	9.3	27	18588	-77.6		29	4.4	18	18262	-61.7	-61.7	27	18.2	31	18097	-57.0	-63.3	31	16.7																								
60	18	19376	-68.8		28	6.4	29	19497	-77.6		09	6.8	25	19487	-71.4		30	3.4	17	19214	-62.3	-62.3	27	15.9	31	19073	-57.7	-63.3	31	15.9																								
50	18	20474	-67.0		32	2.9	29	20583	-67.1		10	3.8	24	20575	-67.6		25	1.0	16	20343	-62.4	-62.4	28	11.7	30	20221	-58.8	-64.4	31	15.2																								
40	17	21826	-65.1		02	25	21	21968	-62.0		25	2.1	24	21930	-63.7		28	3.0	14	21767	-61.5	-61.5	30	9.2	31	21620	-59.5	-65.1	32	15.4																								
30	17	23598	-61.0		35	1.3	29	23751	-56.2		27	8.1	24	23717	-53.0		29	3.8	11	23522	-60.8	-60.8	30	7.6	30	23418	-59.9	-65.5	32	14.4																								
25	14	24737	-58.8		05	23	24	24755	-53.8		27	11.1	22	24739	-56.2		29	4.7	7	24558	-59.1	-59.1	28	24.4	29	24563	-59.3	-64.9	33	15.6																								
20	12	26150	-56.6		31	26	26	26336	-50.5		28	12.6	22	26297	-53.0		28	8.8	5	26355	-57.6	-57.6	27	24.4	29	26295	-59.5	-65.1	33	17.7																								
15	12	27990	-53.2		29	2.2	25	28244	-47.7		28	13.1	21	28167	-50.0		29	4.7						17	27831	-56.7	-62.3	33	16.1																									
10	6	30642	-48.1			14	30	30737	-43.8		18	30	30855	-44.3		25	13.7																																					
7											8	33	33625	-42.8																																								

ISLE DEL CISNE										JACKSON, MS										JOHN F. KENNEDY INT. AP NY										JOHNSTON IS., PACIFIC AREA										KEY WEST, FL									
1014 MR										1010 MR										1010 MR										1015 MR										1019 MR									
5FC	31	10	24.8	20.3	07	3.4	31	100	.5	-2.4	35	.4	30	5	-3.2	-9.2	29	2.2	31	3	24.7	20.6	.8	6.3	31	3	17.8	13.9	03	2.4																			
9000	31	134	24.5	20.3	07	4.3	29	190	.2	-4.0	36	1.1	27	152	-6.7	-10.1	31	3.3	31	129	23.3	18.9	.8	6.8	31	100	17.3	13.3	03	3.0																			
1500	31	583	20.8	18.0	08	5.3	31	591	.1	-5.7	29	2.3	30	535	-6.2	-9.6	29	4.0	31	575	19.7	16.8	.8	7.4	31	603	14.8	10.2	05	1.3																			
900	31	10049	17.6	13.3	08	3.9	31	10026	1.3	-6.1	28	4.9	30	957	-6.9	-10.0	28	6.1	31	10025	16.4	13.3	.9	6.8	31	10080	13.1	9.6	03	1.2																			
800	31	10536	16.0	10.0	10	3.4	31	10536	1.1	-6.7	28	4.0	28	1043	-7.2	-12.0	27	12.0	31	10525	16.4	13.3	.9	6.8	31	10543	11.7	7.5	24	1.2																			
800	31	10547	9.9	5.0	10	3.1	31	10574	.7	-9.6	28	11.8	30	1076	-7.7	-10.5	27	12.5	31	10737	14.4	11.4	.7	6.8	31	10940	9.9	1.9	24	5.4																			
790	31	20586	10.3	-1.0	09	2.1	31	20492	-7.7	-12.1	28	15.3	30	20377	-6.9	-10.4	26	14.4	31	20581	12.8	-7.0	.9	4.7	31	20580	7.5	-7.3	24	7.4																			
700	31	30157	7.2	-5.3	10	1.6	31	30041	-3.0	-10.6	28	17.4	30	20910	-11.1	-18.2	25	16.0	31	30157	9.4	-10.6	.8	4.3	31	30145	4.6	-9.6	25	9.2																			
690	31	30765	5.2	-12.3	14	1.4	31	30624	-5.9	-19.4	27	18.4	30	30676	-13.8	-22.8	25	18.1	31	30768	6.5	-12.7	.7	3.2	31	30745	1.3	-14.5	25	10.9																			
600	31	40415	2.6	-17.5	23	1.2	31	40247	-9.2	-23.5	26	20.6	30	4081	-10.4	-27.4	25	20.5	31	40420	2.3	-10.2	.5	2.7	31	40387	1.5	-18.8	25	14.1																			
550	31	50113	-1.8	-28.0	24	2.1	31	49916	-1.2	-26.8	27	23.4	30	50731	-70.2	-30.4	26	22.2	31	50117	-1.6	-22.9	.35	2.9	31	50774	-5.7	-22.0	26	17.0																			
500	31	50864	-7.1	-22.7	25	4.0	31	50834	-18.4	-31.0	27	25.5	30	50932	-29.5	-35.5	26	24.2	31	50878	-5.9	-24.0	.32	3.0	31	50815	-10.5	-25.8	26	18.4																			
450	31	60474	-10.4	-31.1	26	3.4	31	60512	-23.8	-38.6	27	28.0	30	60912	-30.2	-39.0	25	27.3	31	60687	-10.2	-26.0	.3	4.0	31	60617	-13.9	-30.4	26	21.4																			
400	31	70563	-19.3	-36.1	27	9.2	31	70262	-31.0	-41.1	27	31.5	30	7022	-35.3	-44.5	25	29.6	31	70581	-17.1	-34.1	.31	6.6	31	70494	-22.3	-36.1	27	23.7																			
390	31	80546	-26.2	-41.8	26	12.0	31	80204	-36.4	-50.4	27	35.4	29	70939	-42.2	-53.8	25	30.5	31	80574	-23.2	-38.5	.29	8.3	31	80663	-30.0	-42.5	27	26.6																			
300	31	90639	-35.0	-49.2	26	14.7	31	90254	-43.6	-51.9	26	40.8	28	90960	-48.9	-60.9	25	32.3	31	90682	-31.4	-46.4	.29	10.2	31	90540	-38.2	-49.9	27	29.3																			
250	31	100885	-44.5	-55	26	17.9	31	100457	-51.4	-64	27	44.8	28	100143	-53.5	-65	26	33.3	31	100947	-41.0	-53.7	.29	10.6	31	100769	-47.4	-58	27	33.7																			
200	31	120347	-54.2	-60	26	21.5	31	110888	-55.8	-68	27	48.5	28	115576	-53.8	-65	25	35.3	31	120428	-52.4	-64	.29	11.6	31	120214	-56.1	-67	27	37.1																			
175	31	130193	-59.7	-62	26	23.1	31	127336	-58	-70	27	44.7	26	120266	-53.2	-65	26	33.4	31	130279	-58.4	-67	.29	12.0	31	130055	-60.2	-67	27	38.1																			
150	31	140131	-65.4	-64	26	22.7	31	130709	-58.7	-70	27	41.0	25	120535	-58.7	-66	25	31.5	31	140001	-56.2	-67	.29	10.8	31	140000	-60.2	-67	27	36.7																			
125	31	150237	-71.9	-65	27	27.2	29	140860	-61.6	-70	27	36.3	24	150092	-50.0	-60	26	28.4	31	150314	-73.7	-70	.29	10	31	150108	-69.2	-67	27	32.6																			
100	31	160530	-78.4	-64	27	14.5	28	160214	-65.2	-72	27	28.3	21	150996	-57.6	-66	26	25.7	31	160593	-80.4	-73	.29	11	4.6	31	160423	-74.5	-67	27	35.6																		
80	31	170798	-79.2	-62	27	7.8	27	170567	-66.5	-73	27	26.8	21	170400	-59.0	-66	26	21.6	30	170843	-82.9	-79	.29	10.3	31	170717	-74.8	-67	27	18.7																			
70	31	180503	-75.1	-60	26	3.4	26	180375	-66.1	-71	27	17.8	21	180236	-59.9	-66	26	19.1	28	180593	-79.9	-72	.29	10	3.5	31	180498	-72.1	-67	27	15.1																		
60	31	190601	-71.9	-59	09	.9	26	190311	-65.7	-70	27	13.0	21	190198	-60.6	-66	26	17.6	28	190481	-73.1	-71	.29	10	3.1	29	190410	-70.0	-67	27	13.2																		
50	31	200548	-68.7	-57	07	1.7	25	200424	-65.2	-69	28	10.8	21	200312	-61.0	-66	26	14.2	28	200507	-67.7	-71	.29	10	1.3	24	200502	-68.0	-67	27	10.8																		
40	31	210900	-63.9	-54	24	.1	22	210786	-63.9	-67	28	7.4	20	210349	-61.3	-66	27	12.2	28	210235	-63.7	-67	.29	10	1.7	21	210850	-63.9	-67	27	14.8																		
30	31	220494	-59.1	-51	19	.4	20	220360	-60.0	-65	29	6.0	19	220256	-59.8	-64	26	11.0	27	220406	-62.4	-67	.29	10	1.2	20	220241	-63.9	-67	27	9.5																		
20	31	230859	-53.0	-47	12	1.2	19	230703	-54.8	-59	29	4.4	17	230055	-59.2	-64	25	11.0	27	230476	-58.4	-67	.29	10	1.2	18	230470	-57.8	-67	28	11.9																		
20	31	240309	-49.7	-44	27	15.4	18	240112	-57.0	-60	28	4.6	17	240050	-58.0	-60	26	13.3	27	240314	-51.6	-64	.29	10	1.2	17	240184	-54.0	-67	27	15.8																		
15	31	280295	-66.7	-57	27	19.9	13	270944	-55.5	-58	28	10.3	15	270883	-56.6	-60	27	12.4	26	280194	-48.7	-60	.29	10	9.3	21	280049	-49.6	-67	27	13.7																		
10	31	300906	-44.8	-40	26	17.8	8	300500	-50.4	-54	28	7	300500	-45.5	-50	26	18	300892	-43.1	-47	.29	10	10.0	16	300740	-43.4	-60	26	30.0																				
7	10	330277	-42.6	-36																																													



# RAWINSONDE DATA

Average monthly values

JANUARY 1978

KING SALMON, AK 1012 MB										KUPARUK, CARLINE IS. 1008 MB										VOTZBUE, AK 1011 MB										LAKE CHARLES, LA 1021 MB										LANDER, WY 028 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed mps	Resultant Wind	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed mps	Resultant Wind	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed mps	Resultant Wind	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed mps	Resultant Wind	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed mps	Resultant Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
SPC 27	15	-2.8	-6.7	0.5	3.3	31	3	27	29.3	23.7	0.7	3.7	31	5	-10.3	-13.6	0.9	6.3	31	5	4.3	1.7	04	2.8	31	1.697	-10.7	-14.0	21	1.9	1.958	-5.4	-10.9	30	1.1	2.465	-5.1	-12.2	29	2.7	3.000	-7.3	-14.7	29	3.5	3.580	-10.6	-18.3	29	6.3	6.846	-18.4	-27.3	30	11.5	5.551	-23.1	-32.3	30	13.8	6.314	-28.7	-36.3	29	15.3	7.147	-34.9	-41.6	30	17.1	8.087	-42.3	-45.3	29	20.6	9.088	-50.8	-55.3	29	23.6	10.257	-57.4	-62.3	29	26.6	11.664	-60.8	-65.3	29	29.6	12.515	-64.5	-69.3	29	32.6	13.504	-68.2	-73.3	29	35.6	14.532	-71.9	-76.3	29	38.6	15.560	-75.6	-80.3	29	41.6	16.588	-79.3	-84.3	29	44.6	17.616	-83.0	-88.3	29	47.6	18.644	-86.7	-91.3	29	50.6	19.672	-90.4	-95.3	29	53.6	20.700	-94.1	-99.3	29	56.6	21.728	-97.8	-102.3	29	59.6	22.756	-101.5	-105.3	29	62.6	23.784	-105.2	-109.3	29	65.6	24.812	-108.9	-112.3	29	68.6	25.840	-112.6	-115.3	29	71.6	26.868	-116.3	-118.3	29	74.6	27.896	-120.0	-121.3	29	77.6	28.924	-123.7	-124.3	29	80.6	29.952	-127.4	-128.3	29	83.6	30.980	-131.1	-131.3	29	86.6	31.008	-134.8	-134.3	29	89.6	32.036	-138.5	-138.3	29	92.6	33.064	-142.2	-141.3	29	95.6	34.092	-145.9	-144.3	29	98.6	35.120	-149.6	-148.3	29	101.6	36.148	-153.3	-151.3	29	104.6	37.176	-157.0	-155.3	29	107.6	38.204	-160.7	-158.3	29	110.6	39.232	-164.4	-161.3	29	113.6	40.260	-168.1	-165.3	29	116.6	41.288	-171.8	-168.3	29	119.6	42.316	-175.5	-172.3	29	122.6	43.344	-179.2	-175.3	29	125.6	44.372	-182.9	-178.3	29	128.6	45.400	-186.6	-181.3	29	131.6	46.428	-190.3	-184.3	29	134.6	47.456	-194.0	-188.3	29	137.6	48.484	-197.7	-191.3	29	140.6	49.512	-201.4	-195.3	29	143.6	50.540	-205.1	-199.3	29	146.6	51.568	-208.8	-203.3	29	149.6	52.596	-212.5	-207.3	29	152.6	53.624	-216.2	-211.3	29	155.6	54.652	-220.0	-215.3	29	158.6	55.680	-223.7	-219.3	29	161.6	56.708	-227.4	-223.3	29	164.6	57.736	-231.1	-227.3	29	167.6	58.764	-234.8	-231.3	29	170.6	59.792	-238.5	-235.3	29	173.6	60.820	-242.2	-239.3	29	176.6	61.848	-245.9	-243.3	29	179.6	62.876	-249.6	-247.3	29	182.6	63.904	-253.3	-247.3	29	185.6	64.932	-257.0	-251.3	29	188.6	65.960	-260.7	-255.3	29	191.6	66.988	-264.4	-259.3	29	194.6	68.016	-268.1	-263.3	29	197.6	69.044	-271.8	-267.3	29	200.6	70.072	-275.5	-271.3	29	203.6	71.100	-279.2	-275.3	29	206.6	72.128	-282.9	-279.3	29	209.6	73.156	-286.6	-283.3	29	212.6	74.184	-290.3	-287.3	29	215.6	75.212	-294.0	-291.3	29	218.6	76.240	-297.7	-295.3	29	221.6	77.268	-301.4	-299.3	29	224.6	78.296	-305.1	-303.3	29	227.6	79.324	-308.8	-307.3	29	230.6	80.352	-312.5	-311.3	29	233.6	81.380	-316.2	-315.3	29	236.6	82.408	-320.0	-319.3	29	239.6	83.436	-323.7	-323.3	29	242.6	84.464	-327.4	-327.3	29	245.6	85.492	-331.1	-331.3	29	248.6	86.520	-334.8	-334.3	29	251.6	87.548	-338.5	-338.3	29	254.6	88.576	-342.2	-342.3	29	257.6	89.604	-345.9	-345.3	29	260.6	90.632	-349.6	-349.3	29	263.6	91.660	-353.3	-353.3	29	266.6	92.688	-357.0	-357.3	29	269.6	93.716	-360.7	-360.3	29	272.6	94.744	-364.4	-364.3	29	275.6	95.772	-368.1	-368.3	29	278.6	96.800	-371.8	-371.3	29	281.6	97.828	-375.5	-375.3	29	284.6	98.856	-379.2	-379.3	29	287.6	99.884	-382.9	-382.3	29	290.6	100.912	-386.6	-386.3	29	293.6	101.940	-390.3	-390.3	29	296.6	102.968	-394.0	-394.3	29	299.6	103.996	-397.7	-397.3	29	302.6	105.024	-401.4	-401.3	29	305.6	106.052	-405.1	-405.3	29	308.6	107.080	-408.8	-408.3	29	311.6	108.108	-412.5	-412.3	29	314.6	109.136	-416.2	-416.3	29	317.6	110.164	-420.0	-420.3	29	320.6	111.192	-423.7	-423.3	29	323.6	112.220	-427.4	-427.3	29	326.6	113.248	-431.1	-431.3	29	329.6	114.276	-434.8	-434.3	29	332.6	115.304	-438.5	-438.3	29	335.6	116.332	-442.2	-442.3	29	338.6	117.360	-445.9	-445.3	29	341.6	118.388	-449.6	-449.3	29	344.6	119.416	-453.3	-453.3	29	347.6	120.444	-457.0	-457.3	29	350.6	121.472	-460.7	-460.3	29	353.6	122.500	-464.4	-464.3	29	356.6	123.528	-468.1	-468.3	29	359.6	124.556	-471.8	-471.3	29	362.6	125.584	-475.5	-475.3	29	365.6	126.612	-479.2	-479.3	29	368.6	127.640	-482.9	-482.3	29	371.6	128.668	-486.6	-486.3	29	374.6	129.696	-490.3	-490.3	29	377.6	130.724	-494.0	-494.3	29	380.6	131.752	-497.7	-497.3	29	383.6	132.780	-501.4	-501.3	29	386.6	133.808	-505.1	-505.3	29	389.6	134.836	-508.8	-508.3	29	392.6	135.864	-512.5	-512.3	29	395.6	136.892	-516.2	-516.3	29	398.6	137.920	-520.0	-520.3	29	401.6	138.948	-523.7	-523.3	29	404.6	139.976	-527.4	-527.3	29	407.6	141.004	-531.1	-531.3	29	410.6	142.032	-534.8	-534.3	29	413.6	143.060	-538.5	-538.3	29	416.6	144.088	-542.2	-542.3	29	419.6	145.116	-545.9	-545.3	29	422.6	146.144	-549.6	-549.3	29	425.6	147.172	-553.3	-553.3	29	428.6	148.200	-557.0	-557.3	29	431.6	149.228	-560.7	-560.3	29	434.6	150.256	-564.4	-564.3	29	437.6	151.284	-568.1	-568.3	29	440.6	152.312	-571.8	-571.3	29	443.6	153.340	-575.5	-575.3	29	446.6	154.368	-579.2	-579.3	29	449.6	155.396	-582.9	-582.3	29	452.6	156.424	-586.6	-586.3	29	455.6	157.452	-590.3	-590.3	29	458.6	158.480	-594.0	-594.3	29	461.6	159.508	-597.7	-597.3	29	464.6	160.536	-601.4	-601.3	29	467.6	161.564	-605.1	-605.3	29	470.6	162.592	-608.8	-608.3	29	473.6	163.620	-612.5	-612.3	29	476.6	164.648	-616.2	-616.3	29	479.6	165.676	-620.0	-620.3	29	482.6	166.704	-623.7	-623.3	29	485.6	167.732	-627.4	-627.3	29	488.6	168.760	-631.1	-631.3	29	491.6	169.788	-634.8	-634.3	29	494.6	170.816	-638.5	-638.3	29	497.6	171.844	-642.2	-642.3	29	500.6	172.872	-645.9	-645.3	29	503.6	173.900	-649.6	-649.3	29	506.6	174.928	-653.3	-653.3	29	509.6	175.956	-657.0	-657.3	29	512.6	176.984	-660.7	-660.3	29	515.6	178.012	-664.4	-664.3	29	518.6	179.040	-668.1	-668.3	29	521.6	180.068	-671.8	-671.3	29	524.6	181.096	-675.5	-675.3	29	527.6	182.124	-679.2	-679.3	29	530.6	183.152	-682.9	-682.3	29	533.6	184.180	-686.6	-686.3	29	536.6	185.208	-690.3	-690.3	29	539.6	186.236	-694.0	-694.3	29	542.6	187.264	-697.7	-697.3	29	545.6	188.292	-701.4	-701.3	29	548.6	189.320	-705.1	-705.3	29	551.6	190.348	-708.8	-708.3	29	554.6	191.376	-712.5	-712.3	29	557.6	192.404	-716.2	-716.3	29	560.6	193.432	-720.0	-720.3	29	563.6	194.460	-723.7	-723.3	29	566.6	195.488	-727.4	-727.3	29	569.6	196.516	-731.1	-731.3	29	572.6	197.544	-734.8	-734.3	29	575.6	198.572	-738.5	-738.3	29	578.6	199.600	-742.2	-742.3	29	581.6	200.628	-745.9	-745.3	29	584.6	201.656	-749.6	-749.3	29	587.6	202.684	-753.3	-753.3	29	590.6	203.712	-757.0	-757.3	29	593.6	204.740	-760.7	-760.3	29	596.6	205.768	-764.4	-764.3	29	599.6	206.796	-768.1	-768.3	29	602.6	207.824	-771.8	-771.3	29	605.6	208.852	-775.5	-775.3	29	608.6	209.880	-779.2	-779.3	29	611.6	210.908	-782.9	-782.3	29	614.6	211.936	-786.6	-786.3	29	617.6	212.964	-790.3	-790.3	29	620.6	213.992	-794.0	-794.3	29	623.6	215.020	-797.7	-797.3	29	626.6	216.048	-801.4	-801.3	29	629.6	217.076	-805.1	-805.3	29	632.6	218.104	-808.8	-808.3	29	635.6	219.132	-812.5	-812.3	29	638.6	220.160	-816.2	-816.3	29	641.6	221.188	-820.0	-820.3	29	644.6	222.216	-823.7	-823.3	29	647.6	223.244	-827.4	-827.3	29	650.6	224.272	-831.1	-831.3	29	653.6	225.300	-834.8	-834.3	29	656.6	226.328	-838.5	-838.3	29	659.6	227.356	-842.2	-842.3	29	662.6	228.384	-845.9	-845.3	29	665.6	229.412	-849.6	-849.3	29	668.6	230.440	-853.3	-853.3	29	671.6	231.468	-857.0	-857.3	29	674.6	232.496	-860.7	-860.3	29	677.6	233.524	-864.4	-864.3	29	680.6	234.552	-868.1	-868.3	29	683.6



# RAWINSONDE DATA

Average monthly values

JANUARY 1978

NASHVILLE, TN 1000 MB										NOME, AK 1007 MB										NORTH PLATTE, NE 922 MB										OAKLAND, CA 1016 MB										OMAHA, NE 975 MB												
Standard pressure surface mb		No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps															
5PC	31	180	-3.9	-7.4	24	1.6	30	5	-4.9	-8.0	08	4.6	31	847	-14.3	-17.2	32	1.0	31	138	9.7	7.6	14	1.6	31	403	-14.0	-16.9	32	2.7	7	138	10.7	9.7	7.6	14	1.6	31	403	-14.0	-16.9	32	2.7									
1000	31	226	-0.9	-13.5	30	1.7	20	107	-3.9	-6.5	10	5.1	10	6.8	-0.9	-3.7	10	6.8	31	365	9.6	8.4	1.9	1.9	31	598	-12.9	-15.2	32	4.1	1	365	9.6	8.4	1.9	1.9	31	598	-12.9	-15.2	32	4.1										
950	31	986	-5.2	-9.1	27	3.8	30	480	-4.4	-7.7	10	6.8	10	6.8	-5.2	-9.1	27	3.8	31	1013	7.9	7.7	3.8	31	1012	-10.7	-10.9	32	5.8	1	986	-5.2	-9.1	27	3.8	31	1013	7.9	7.7	3.8	31	1012	-10.7	-10.9	32	5.8						
900	31	10010	-5.8	-10.4	27	5.8	30	1085	-3.3	-6.8	11	6.0	31	1.029	-10.9	-13.7	31	2.7	31	1.013	7.9	7.7	2.7	31	1.012	-10.7	-10.9	32	7.1	1	10010	-5.8	-10.4	27	5.8	31	1.029	-10.9	-13.7	31	2.7	31	1.013	7.9	7.7	2.7	31	1.012	-10.7	-10.9	32	7.1
850	31	1.457	-5.8	-12.0	24	4.2	30	1.333	-6.5	-10.7	12	6.1	31	1.472	-7.7	-12.6	32	5.2	31	1.483	5.4	4.1	21	5.3	31	1.453	-9.3	-10.3	31	9.7	1	1.457	-5.8	-12.0	24	4.2	30	1.333	-6.5	-10.7	12	6.1	31	1.472	-7.7	-12.6	32	5.2				
800	31	1.933	-5.9	-14.3	28	1.5	30	1.806	-8.3	-15.2	12	6.5	31	1.944	-7.1	-13.6	31	7.0	31	1.977	3.3	6.2	22	6.2	31	1.922	-9.4	-10.8	31	8.5	1	1.933	-5.9	-14.3	28	1.5	30	1.806	-8.3	-15.2	12	6.5	31	1.944	-7.1	-13.6	31	7.0				
750	31	2.248	-6.9	-10.6	28	12.7	30	2.304	-10.8	-17.9	13	6.7	31	2.447	-7.6	-15.3	31	9.1	31	2.498	7.7	9.5	23	6.8	31	2.421	-10.6	-10.9	31	9.7	1	2.248	-6.9	-10.6	28	12.7	30	2.304	-10.8	-17.9	13	6.7	31	2.447	-7.6	-15.3	31	9.1				
700	31	2.975	-8.7	-19.2	28	14.8	30	2.832	-13.8	-22.3	14	7.3	31	2.981	-10.1	-17.5	31	10.8	31	3.033	2.6	2.6	24	7.1	31	2.950	-12.4	-21.8	31	11.1	1	2.975	-8.7	-19.2	28	14.8	30	2.832	-13.8	-22.3	14	7.3	31	2.981	-10.1	-17.5	31	10.8				
650	31	3.547	-10.9	-20.9	28	17.5	30	3.391	-17.3	-27.5	14	7.9	31	3.550	-12.5	-20.2	31	12.8	31	3.603	2.7	2.7	25	7.8	31	3.514	-14.7	-25.0	31	13.1	1	3.547	-10.9	-20.9	28	17.5	30	3.391	-17.3	-27.5	14	7.9	31	3.550	-12.5	-20.2	31	12.8				
600	31	4.215	-14.1	-25.5	28	21.1	30	3.987	-21.1	-31.3	15	7.3	31	4.158	-16.0	-23.9	31	14.8	31	4.255	10.0	10.0	26	9.1	31	4.119	-18.0	-30.4	31	15.1	1	4.215	-14.1	-25.5	28	21.1	30	3.987	-21.1	-31.3	15	7.3	31	4.158	-16.0	-23.9	31	14.8				
550	31	4.815	-18.0	-29.4	28	22.9	30	4.623	-25.8	-34.9	16	6.9	31	4.808	-20.0	-28.1	30	16.8	31	4.920	-14.4	-23.9	26	10.1	31	4.762	-22.0	-31.5	30	16.8	1	4.815	-18.0	-29.4	28	22.9	30	4.623	-25.8	-34.9	16	6.9	31	4.808	-20.0	-28.1	30	16.8				
500	31	5.521	-22.5	-33.3	27	25.8	30	5.307	-30.5	-40.9	16	7.8	31	5.509	-24.4	-33.1	30	19.2	31	5.636	-19.1	-28.6	26	11.3	31	5.427	-26.3	-36.2	30	18.7	1	5.521	-22.5	-33.3	27	25.8	30	5.307	-30.5	-40.9	16	7.8	31	5.509	-24.4	-33.1	30	19.2				
450	31	6.287	-27.3	-38.4	27	28.4	29	6.047	-35.7	-44.9	17	9.3	31	6.269	-29.6	-38.1	30	21.3	30	6.408	-25.2	-34.0	27	11.9	30	6.217	-31.1	-41.6	30	21.3	1	6.287	-27.3	-38.4	27	28.4	29	6.047	-35.7	-44.9	17	9.3	31	6.269	-29.6	-38.1	30	21.3				
400	31	7.132	-33.0	-43.8	27	31.8	29	6.857	-42.1	-51.0	17	9.6	31	7.099	-35.5	-43.8	30	23.9	30	7.252	-31.9	-39.0	27	13.9	30	7.043	-36.7	-46.1	30	24.6	1	7.132	-33.0	-43.8	27	31.8	29	6.857	-42.1	-51.0	17	9.6	31	7.099	-35.5	-43.8	30	23.9				
350	31	8.061	-39.6	-45.8	27	35.8	29	7.781	-48.5	-57.4	18	10.0	31	8.018	-42.5	-50.4	30	25.8	30	8.184	-39.4	-46.2	27	15.1	30	7.958	-40.9	-50.9	30	26.8	1	8.061	-39.6	-45.8	27	35.8	29	7.781	-48.5	-57.4	18	10.0	31	8.018	-42.5	-50.4	30	25.8				
300	31	8.909	-47.0	-54.0	26	42.0	29	8.749	-54.1	-63.0	18	9.7	31	9.038	-50.4	-58.4	30	28.0	30	9.218	-47.4	-54.2	28	18.1	30	8.976	-50.9	-60.4	29	28.4	1	8.909	-47.0	-54.0	26	42.0	29	8.749	-54.1	-63.0	18	9.7	31	9.038	-50.4	-58.4	30	28.0				
250	31	10.286	-53.0	-60.0	26	42.0	28	9.914	-55.6	-64.5	18	9.3	31	10.210	-56.6	-64.6	29	25.0	30	10.402	-53.2	-60.0	28	23.4	30	10.150	-55.3	-64.3	29	29.0	1	10.286	-53.0	-60.0	26	42.0	28	9.914	-55.6	-64.5	18	9.3	31	10.210	-56.6	-64.6	29	25.0				
200	31	11.718	-54.2	-62.0	26	42.0	28	11.349	-51.4	-60.3	19	10.2	31	11.625	-55.2	-63.2	29	24.3	29	11.815	-57.1	-64.0	27	24.5	30	11.574	-54.3	-63.4	29	29.0	1	11.718	-54.2	-62.0	26	42.0	28	11.349	-51.4	-60.3	19	10.2	31	11.625	-55.2	-63.2	29	24.3				
175	31	12.574	-54.1	-62.0	26	34.3	28	12.222	-50.1	-59.0	20	9.2	31	12.492	-53.6	-61.6	29	24.6	28	12.665	-54.4	-61.3	27	23.2	30	12.433	-53.0	-62.1	29	25.7	1	12.574	-54.1	-62.0	26	34.3	28	12.222	-50.1	-59.0	20	9.2	31	12.492	-53.6	-61.6	29	24.6				
150	31	13.503	-55.5	-63.0	26	34.4	28	13.228	-49.4	-58.3	21	9.7	31	13.473	-54.3	-62.3	29	23.8	28	13.649	-55.6	-63.5	27	20.0	30	13.427	-53.4	-62.5	29	26.4	1	13.503	-55.5	-63.0	26	34.4	28	13.228	-49.4	-58.3	21	9.7	31	13.473	-54.3	-62.3	29	23.8				
125	31	14.718	-58.1	-66.0	26	34.6	28	14.422	-50.0	-58.9	21	10.6	31	14.640	-55.5	-63.5	29	20.8	28	14.805	-58.0	-66.0	27	17.8	30	14.590	-55.1	-64.2	29	21.5	1	14.718	-58.1	-66.0	26	34.6	28	14.422	-50.0	-58.9	21	10.6	31	14.640	-55.5	-63.5	29	20.8				
100	31	18.131	-61.3	-69.0	26	6.6	23	17.721	-50.2	-59.1	22	11.5	31	18.054	-58.0	-66.0	29	18.6	28	18.198	-61.4	-69.4	27	13.2	30	18.013	-57.6	-66.7	29	18.8	1	18.131	-61.3	-69.0	26	6.6	23	17.721	-50.2	-59.1	22	11.5	31	18.054	-58.0	-66.0	29	18.6				
75	31	17.495	-62.9	-70.0	27	18.2	28	17.337	-50.5	-59.4	22	11.9	31	17.655	-59.6	-67.6	35	15.7	28	17.757	-62.9	-70.9	27	9.9	30	17.615	-57.9	-67.0	29	18.7	1	17.495	-62.9	-70.0	27	18.2	28	17.337	-50.5	-59.4	22	11.9	31	17.655	-59.6	-67.6	35	15.7				
50	31	18.313	-63.7	-71.0	27	16.4	28	18.207	-51.2	-60.1	23	12.3	31	18.499	-60.1	-68.1	30	12.2	28	18.639	-63.1	-71.1	27	5.2	30	18.251	-59.7	-68.8	29	14.0	1	18.313	-63.7	-71.0	27	16.4	28	18.207	-51.2	-60.1	23	12.3	31	18.499	-60.1	-68.1	30	12.2				
25	31	19.261	-63.2	-71.0	28	12.3	28	19.208	-51.5	-60.4	24	12.6	30	19.253	-60.5	-68.5	31	10.2	28	19.348	-62.7	-70.7	31	3.3	30	19.215	-60.0	-68.9	30	11.9	1	19.261	-63.2	-71.0	28	12.3	28	19.208	-51.5	-60.4	24	12.6	30	19.253	-60.5	-68.5	31	10.2				
0	31	20.377	-63.3	-71.0	28	9.9	28	20.394	-51.0	-60.0	24	13.5	28	20.383	-61.0	-69.0	31	7.8	28	20.473	-62.7	-70.7	31	0.1	30	20.350	-61.3	-69.8	31	10.3	1	20.377	-63.3	-71.0	28	9.9	28	20.394	-51.0	-60.0	24	13.5	28	20.383	-61.0	-69.0	31	7.8				
1000	31	21.745	-63.5	-71.0	29	9.9	26	21.747	-51.0	-60.0	25	14.4	28	21.767	-61.0	-69.0	33	7.9	28	21.856	-61.1	-69.1	31	0.5	4.5	21.734	-61.0	-69.9	32	10.3	1	21.745	-63.5	-71.0	29	9.9	26	21.747	-51.0	-60.0	25	14.4	28	21.767	-61.0	-69.0	33	7.9				
950	31	23.521	-61.3	-69.0	30	6.6	23	23.521	-50.2	-59.2	26	16.4	27	23.566	-59.5	-67.5	35	7.1	25	23.653	-59.0	-67.0	35	0.0	7.8	23.522	-59.9	-670.0</																								



## Average monthly values

SALE", 70

SALT LAKE CITY, U

SAN DIEGO, CA

SAN JUAN, P. R  
1917 40

\* SAULT STE MARIE, MI  
990 MB

[illegible]

ΣΠΟΚΑΛΕ, Δ

TAMPA BAY, FL

ΤΟΡΕΚΑ, ΚΣ

TRUK, CAROLINE I

TUCSON, AZ

SFC	31	720	-2.9	-4.8	0.7	1.3	1.3	1.3	9.9	7.2	1.1	31	268	-10.7	-14.0	33	1.7	31	2	27.7	23.4	06	5.1	31	789	7.8	3.3	13	1.6
1000								1.1	169	11.1	6.2	0.3	1.4	5	282	-9.2	-21.9												
950								1.1	598	10.4	5.4	24	1.9	51	295	-14.7	-13.2	32	5.4	31	98	26.7	22.2	05	6.6				
900								1.1	104	10.0	-4.3	27	6.9	31	1495	-7.0	-15.5	33	6.5	31	1002	16.2	14.4	06	8.0				
850								3.1	1523	-4.3	-4.3	27	6.9	31	1495	-7.0	-17.7	32	6.5	31	1514	17.5	12.4	07	7.0				
800								4.8	2024	8.0	-7.1	27	8.7	31	1942	-6.8	-19.2	31	8.3	31	2032	16.1	6.3	08	5.6				
750								4.1	2555	5.6	-9.7	27	11.1	31	2445	-7.8	-18.9	31	10.0	31	2570	14.4	1.4	09	5.9				
700								7.0	3116	2.6	-13.3	26	13.1	31	2496	-9.4	-19.9	30	12.5	31	3159	11.4	-4.4	09	6.3				
650								3.1	3712	-5.5	-17.7	26	15.6	31	3551	-12.1	-22.2	30	14.7	31	3775	8.0	-8.6	08	7.4				
600								5.1	4613	-14.8	-23.9	26	17.9	31	4170	-15.2	-26.3	30	17.2	31	4401	4.1	-13.7	08	7.9				
550								7.0	5220	-23.9	-23.9	26	20.9	31	4812	-19.1	-31.6	30	20.2	31	5133	-17.0	-17.0	08	7.2				
500								11.4	5761	-13.3	-27.7	26	24.4	31	5515	-23.8	-36.0	30	22.1	31	5691	-3.9	-19.1	08	7.2				
450								12.4	6355	-18.4	-32.1	26	27.1	31	6278	-27.7	-40.6	29	23.3	31	6715	-8.6	-23.0	09	8.3				
400								14.1	7425	-24.4	-35.2	26	30.7	31	7111	-34.7	-45.6	28	25.3	31	7619	-14.0	-29.7	09	9.0				
350								15.5	8387	-31.3	-41.7	26	34.7	31	8034	-41.7	-45.5	28	28.6	31	8523	-20.4	-35.4	09	8.8				
300								16.9	9146	-33.9	-46.9	26	36.2	31	8905	-40.6	-45.6	28	30.9	31	9404	-27.7	-42.8	09	9.0				
250								18.4	10653	-44.2	-46.9	26	41.5	28	10243	-55.3	-55.3	28	31.7	31	11015	-39.4	-50.8	10	9.4				
200								19.8	12124	-56.3	-56.3	27	41.5	28	11668	-64.1	-64.1	27	28.2	31	12501	-52.2	-52.2	11	10.6				
175								24	1519	-72.8	-59.5	27	42.9	28	12528	-53.1	-53.1	28	27.1	31	13352	-59.3	-59.3	11	12.1				
150								29	1543	131.925	-62.2	27	41.2	28	13521	-63.6	-63.6	28	26.3	31	14299	-67.8	-67.8	10	13.5				
125								29	1422	115.042	-66.4	27	33.8	28	14688	-55.8	-55.8	28	22.0	31	15375	-75.8	-75.8	10	16.4				
100								31	11.7	119.374	-71.3	27	27.1	28	16068	-58.9	-58.9	28	20.0	31	16439	-83.1	-83.1	09	18.4				
75								31	7.7	177.644	-71.6	27	18.9	27	17493	-4.1	-4.1	29	17.9	30	17676	-89.2	-89.2	09	13.2				
70								31	8.7	29.148	-69.6	27	16.0	27	18328	-40.1	-40.1	29	13.5	30	18426	-77.4	-77.4	09	9.7				
65								32	7.7	18.140	-67.8	26	14.3	25	19285	-61.2	-61.2	29	11.0	30	19526	-71.2	-71.2	10	7.3				
60								34	6.9	28.511	-66.2	26	11.2	25	20447	-61.3	-61.3	30	8.9	29	20624	-64.1	-64.1	11	2.1				
55								35	6.9	27.218	-66.4	27	11.8	24	21401	-61.3	-61.3	32	7.4	29	22309	-59.1	-59.1	28	6.7				
50								41	2.7	23.646	-67.6	27	11.6	20	23394	-64.3	-64.3	34	5.0	29	23631	-55.4	-55.4	27	14.0				
25								41	2.7	23.646	-67.6	27	11.6	20	23394	-64.3	-64.3	34	5.0	29	23631	-55.4	-55.4	27	14.0				
20								41	2.7	23.646	-67.6	27	11.6	20	23394	-64.3	-64.3	34	5.0	29	23631	-55.4	-55.4	27	14.0				
15								41	2.7	23.646	-67.6	27	11.6	20	23394	-64.3	-64.3	34	5.0	29	23631	-55.4	-55.4	27	14.0				
10								41	2.7	23.646	-67.6	27	11.6	20	23394	-64.3	-64.3	34	5.0	29	23631	-55.4	-55.4	27	14.0				

EVERETT, AFP.

victoria, TX

IS - PACIF

LLIPS ISLAND, VA

WASHINGTON DULLES INT AIR

1005 MB										1017 MB										1018 MB										1017 MB										1007 MB									
5FC	3	130	10.5	7.3	12	1.4	31	33	5.0	2.5	36	3.0	31	5	24.8	20.9	06	5.3	31	4	-5.6	-6.8	31	2.8	30	85	-5.6	-10.4	29	1.6																			
1000	2	153	12.0	7.8	11	1.4	31	172	5.6	2.6	33	3.2	31	129	23.6	18.7	06	5.0	28	161	-1.0	-7.8	32	5.0	25	172	-4.3	-9.6	30	2.2																			
990	3	157	12.9	3.7	14	2.4	31	593	4.9	3.5	35	9.31	576	19.6	16.6	07	6.2	31	546	-1.3	-7.7	29	6.2	30	544	-4.9	-10.8	29	5.4																				
980	3	16027	9.8	1.5	16	4.2	31	10039	7.6	2.6	37	3.7	31	14040	16.6	13.5	09	5.1	31	976	-2.3	-3.9	27	7.5	30	988	-6.2	-12.5	29	7.3																			
970	3	15	15	3.7	15	3.7	15	7.8	6.1	7.8	6.1	7.8	6.1	7.8	6.1	7.8	6.1	7.8	6.1	7.8	6.1	-12.4	27	7.5	30	1494	-12.4	-9.7	27	11.5																			
960	3	19979	5.0	-0.4	24	7.1	27007	5.3	-3.8	76	9.3	33	20406	15.1	9.9	2.6	6.1	19071	3.1	-1.7	-1.7	26	11.8	1	1889	-0.8	-14.2	27	11.5																				
750	3	25521	2.3	-11.0	24	5.2	31	25234	3.1	-8.9	27	10.5	31	25855	13.1	-4.4	14	1.6	31	24144	-6.2	-1.7	26	14.4	20	2392	-6.3	-19.0	27	13.6																			
740	3	34076	-0.7	-15.3	23	7.3	31	34090	1.1	-14.7	27	11.5	31	34152	10.4	-8.7	18	1.2	31	29552	-0.1	-21.1	26	17.0	30	2926	-10.3	-13.8	26	16.6																			
650	3	36664	-6.1	-17.3	24	7.7	31	36683	-1.9	-17.2	27	14.0	31	37775	7.6	-11.6	21	1.8	31	34526	-10.3	-24.9	25	19.9	30	3494	-12.7	-22.2	26	17.8																			
640	3	4676	-8.4	-21.1	22	10.5	31	46344	-8.0	-20.9	27	16.3	31	44730	7.1	-15.8	23	1.8	31	44138	-13.6	-24.5	26	22.3	30	4401	-12.0	-25.6	26	18.6																			
630	3	49599	-1.5	-19.9	22	12.1	31	49599	-2.2	-19.9	27	18.9	31	49730	19.7	-19.7	23	1.8	31	49730	-13.6	-24.5	26	22.3	30	49730	-12.0	-25.6	26	18.6																			
590	3	56579	-9.9	-29.0	26	14.1	31	57151	-11.0	-29.0	27	21.0	31	56885	-5.4	-24.3	29	3.8	31	5693	-22.2	-34.2	25	26.0	30	5452	-24.4	-35.9	26	24.4																			
490	3	64648	-23.7	-33.7	26	16.7	31	65705	-21.2	-33.7	27	24.4	31	6704	-10.3	-27.4	29	6.3	31	67269	-27.8	-34.6	26	26.3	30	6213	-29.1	-40.1	26	25.0																			
390	3	73438	-29.9	-38.7	26	17.1	31	73361	-27.0	-38.8	27	28.4	31	76061	-11.1	-32.0	29	7.7	31	77107	-33.3	-43.9	26	30.6	30	76045	-34.7	-45.5	26	26.8																			
290	3	83428	-37.0	-44.2	26	17.1	31	83314	-33.2	-44.3	27	33.4	31	83577	-22.8	-36.8	29	9.2	31	83339	-39.4	-49.0	26	34.5	30	7908	-44.0	-45.1	26	29.0																			
280	3	92370	-43.0	-44.2	26	17.1	31	92370	-43.0	-44.2	27	33.4	31	92370	-43.0	-44.2	29	9.2	31	92370	-43.0	-44.2	26	34.5	30	7908	-44.0	-45.1	26	29.0																			
270	3	104848	-53.6	-53.6	26	17.1	31	104848	-53.6	-53.6	27	41.0	31	104848	-53.6	-53.6	29	11.4	31	104848	-53.6	-53.6	26	34.5	30	7908	-44.0	-45.1	26	29.0																			
260	3	1149.9	-50.0	-50.0	26	31.4	31	120337	-55.3	-55.3	27	45.2	31	12454	-52.3	-52.3	27	12.2	31	1149.9	-54.2	-54.2	26	41.3	29	11622	-53.6	-53.6	26	34.7																			
175	3	127740	-56.1	-56.1	27	3.3	30	127887	-57.3	-57.3	27	45.7	31	13335	-58.9	-58.9	27	12.2	31	127556	-54.1	-54.1	26	37.9	28	127478	-53.9	-53.9	26	34.3																			
150	3	133738	-57.4	-57.4	27	27.4	30	134804	-60.5	-60.5	27	40.4	31	14255	-66.4	-66.4	27	11.2	30	13359	-55.6	-55.6	26	36.8	28	13467	-54.4	-54.4	26	31.5																			
125	3	144852	-59.9	-59.9	27	23.4	30	144852	-64.5	-64.5	27	13.4	31	15337	-74.5	-74.5	28	9.2	30	14499	-57.9	-57.9	26	33.4	28	14630	-56.7	-56.7	26	29.2																			
100	3	164202	-63.4	-63.4	27	17.4	30	164202	-68.4	-68.4	27	17.2	28	164202	-68.4	-68.4	27	15.2	28	164202	-68.4	-68.4	26	28.2	27	165032	-69.1	-69.1	26	26.2																			
80	3	176612	-68.8	-68.8	27	11.4	28	176657	-70.0	-70.0	27	19.2	28	17858	-73.5	-73.5	27	15.2	28	17676	-61.3	-61.3	27	21.8	27	17676	-61.3	-61.3	26	19.4																			
60	3	184848	-64.6	-64.6	28	7.2	28	184848	-64.3	-64.3	27	15.6	28	184848	-70.5	-70.5	12	3.7	28	184302	-62.3	-62.3	27	19.4	25	18255	-61.3	-61.3	27	17.8																			
40	3	194375	-64.4	-64.4	28	8.2	28	194375	-68.4	-68.4	28	11.5	28	19449	-74.7	-74.7	10	3.9	27	19253	-62.4	-62.4	27	18.0	23	19203	-61.6	-61.6	27	17.7																			
20	3	204906	-63.4	-63.4	31	3.4	28	210477	-64.0	-64.0	28	8.6	28	204906	-69.3	-69.3	10	3.4	27	20379	-62.4	-62.4	27	14.5	23	20332	-61.6	-61.6	27	13.6																			
0	3	215833	-62.2	-62.2	31	3.2	28	215833	-68.3	-68.3	28	9.5	28	215833	-74.8	-74.8	10	2.7	27	21757	-62.0	-62.0	27	12.9	21	21712	-62.1	-62.1	28	10.4																			
0	3	226333	-61.3	-61.3	31	3.2	28	226333	-65.3	-65.3	28	9.5	28	226333	-70.8	-70.8	10	2.7	27	226333	-62.0	-62.0	27	12.9	21	226333	-62.1	-62.1	28	10.4																			
25	14	236886	-58.8	-58.8	27	7.4	23	244752	-57.4	-57.4	29	6.2	24	24359	-55.2	-55.2	32	2.8	25	24681	-59.4	-59.4	28	10.2	15	24634	-59.3	-59.3	29	8.6																			
15	14	26272	-56.5	-56.5	27	7.4	23	262752	-57.4	-57.4	29	6.2	24	26294	-52.4	-52.4	38	4.4	24	26294	-58.3	-58.3	28	11.1	19	26295	-58.4	-58.4	29	9.1																			
10	14	289409	-53.6	-53.6	07	4.2	17	289434	-54.5	-54.5	28	11.6	23	289169	-69.2	-69.2	27	8.8	21	27701	-56.0	-56.0	28	15.7	18	27842	-57.0	-57.0	28	13.1																			
5	14	30775	-48.5	-48.5	8	3.4	6	307682	-47.4	-47.4	28	10.2	20	30684	-64.0	-64.0	28	9.1	15	30493	-51.1	-51.1	27	26.0	9	30456	-51.5	-51.5	27	26.0																			



## Average monthly values

JANUARY 1978

- 21 -

# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

JANUARY 1978

Date	Sun's zenith distance								
	A M				*	P M			
	78 7°	75 7°	70 7°	60 0°		60 0°	70 7°	75 7°	78 7°
ALBUQUERQUE, NM									
Air mass									
	4.19	3.36	2.51	1.67	*	1.67	2.51	3.35	4.19
2-----	-----	-----	-----	-----	-----	-----	1.10	-----	.92
3-----	.80	-----	-----	-----	-----	1.33	-----	-----	-----
4-----	(.83)	(.99)	(1.17)	-----	-----	-----	-----	-----	-----
5-----	1.13	1.21	1.30	1.45	1.47	1.45	1.32	1.21	1.12
6-----	1.10	1.19	1.28	(1.41)	1.44	1.42	(1.28)	-----	-----
7-----	-----	-----	(1.33)	(1.47)	(1.43)	(1.39)	-----	-----	-----
8-----	-----	-----	-----	-----	1.42	-----	1.27	1.17	1.09
9-----	1.07	1.15	1.20	1.42	1.39	-----	-----	-----	-----
10-----	.96	-----	-----	-----	-----	-----	-----	-----	-----
11-----	.92	1.03	1.17	1.36	-----	-----	-----	1.08	.96
12-----	-----	-----	-----	-----	-----	-----	1.29	1.19	-----
13-----	1.04	1.16	1.28	1.40	1.47	1.42	1.28	1.17	1.07
14-----	1.06	1.17	1.28	1.39	1.48	1.40	1.25	1.13	1.01
15-----	1.05	1.13	1.21	1.42	-----	-----	-----	-----	-----
16-----	-----	-----	-----	-----	-----	1.42	1.28	1.16	1.06
17-----	-----	-----	-----	-----	-----	1.38	1.20	1.09	.99
18-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
19-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Average	1.01	1.15	1.25	1.41	1.46	1.40	1.25	1.15	1.03

MADISON, WI									
Air mass									
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
2-----	S .85	S .97	-----	-----	-----	-----	-----	-----	-----
3-----	S .92	S1.04	S1.17	-----	S1.24	-----	S1.19	S1.07	S .96
4-----	-----	-----	-----	-----	S1.21	-----	S1.17	S1.01	S .95
5-----	S .96	S1.06	S1.18	-----	S1.28	-----	S1.24	S1.11	S1.02
6-----	S1.00	S1.07	S1.21	-----	S1.32	-----	S1.25	S1.14	S1.07
7-----	S1.05	S1.14	S1.25	-----	S1.33	-----	S1.25	S1.15	S1.07
8-----	S .98	S1.09	-----	-----	S1.26	-----	-----	-----	-----
9-----	S .82	S .94	S1.08	-----	S1.20	-----	S1.10	S .98	S .87
10-----	H .69	H .74	S .82	-----	-----	-----	-----	-----	-----
Aver- ages	.91	1.01	1.12	-----	1.26	-----	1.20	1.08	.99

TUCSON, AZ									
Air mass									
	4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64
2-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
13-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
14-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
15-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
16-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
17-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
18-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
19-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
20-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
21-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
22-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
23-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
24-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
25-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
26-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
27-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
28-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
29-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
30-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
31-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Aver- ages	-----	-----	-----	-----	-----	-----	-----	-----	-----
NO DATA RECEIVED									

BLUE HILL OBSERVATORY, MA									
Air mass									
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
2-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
5-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
13-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
14-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
15-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
16-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
17-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
18-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
19-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
20-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
21-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
22-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
23-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
24-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
25-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
26-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
27-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
28-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
29-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Aver- ages	-----	-----	-----	-----	-----	-----	-----	-----	-----

MAUNA LOA OBSERVATORY, HI									
Air mass									
	3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34
4-----	-----	-----	-----	-----	-----	1.52	1.42	1.33	1.22
5-----	1.31	1.37	1.47	1.57	1.65	1.55	1.44	1.35	1.27
6-----	1.30	1.38	1.47	1.58	1.67	1.59	1.49	1.40	1.32
7-----	1.31	1.38	1.47	1.58	1.66	1.56	1.44	1.35	1.26
8-----	1.30	1.38	1.47	1.58	1.66	1.57	1.42	1.35	1.25
9-----	1.32	1.40	1.47	1.58	1.63	1.53	1.41	1.33	1.25
10-----	-----	-----	-----	-----	1.58	-----	-----	-----	-----
11-----	1.33	1.41	1.49	1.57	1.66	1.53	1.43	1.32	1.23
12-----	-----	-----	-----	-----	1.61	1.50	1.37	1.28	1.20
13-----	1.21	1.29	1.39	1.50	1.59	1.46	1.32	1.22	1.13
14-----	1.24	1.32	1.42	1.52	1.60	-----	-----	-----	-----
15-----	1.25	1.33	1.42	1.53	1.63	1.50	1.38	1.27	1.18
16-----	1.30	1.37	1.45	1.56	1.64	1.54	1.41	1.32	1.24
17-----	1.23	1.33	1.41	1.54	1.64	1.57	1.46	1.38	1.30
18-----	1.32	1.40	1.48	1.59	1.67	1.48	1.34	1.23	1.14
19-----	1.26	1.33	1.43	1.55	1.64	1.49	1.36	1.27	1.18
20-----	1.26	1.35	1.44	1.55	1.62	1.49	1.37	1.28	1.20
21-----	1.30	1.38	1.47	1.57	1.63	-----	-----	-----	-----
22-----	1.30	1.38	1.48	1.57	1.65	1.51	1.44	1.35	1.27
23-----	1.28	1.33	1.43	1.52	1.62	1.51	1.38	1.29	1.21
24-----	1.21	1.30	1.40	1.52	1.63	1.53	1.43	1.35	1.28
25-----	1.26	1.34	1.44	1.53	1.63	1.50	1.49	1.29	1.22
26-----	1.27	1.34	1.43	1.53	1.62	-----	-----	-----	-----
27-----	1.33	1.40	1.48	1.58	1.68	1.57	1.46	1.35	1.26
28-----	1.31	1.39	1.47	1.58	1.66	1.52	1.42	1.35	1.27
29-----	1.32	1.39	1.48	1.58	-----	-----	-----	-----	-----
30-----	1.28	1.34	1.44	1.55	-----	-----	-----	-----	-----
31-----	1.34	1.41	1.50	1.60	1.62	-----	-----	-----	-----
Aver- ages	1.29	1.36	1.45	1.55	1.64	1.52	1.41	1.32	1.23



## JANUARY 1978

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Days	-72	-87	-59	-59	-82	-88	-77	-24	-4	-6	-49	-54	-46	-10	+5	-34	-53	-24	-18	-49	-45	-58	-55	-43	-67	-5	-15	-38	-83	-89	-76	-47

## SOLAR ULTRA-VIOLET RADIATION DATA

Daily totals and monthly average ( $<3900 \text{ \AA}$ ) at Ames, Iowa.

Date. . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's. . .																																

# REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations)

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- ° Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data Service, NOAA, monthly publication STORM DATA.
- + No Storm Data Report received for this State.
- <> Report Incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion.

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeterminable
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Sand
BN	Blowing Sand	GF	Ground Fog	K	Smoke	S	Slight Haze-indeterminable
D	Dust	H	Haze	KI	Intense Smoke		
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

SOLAR ULTRA-VIOLET RADIATION DATA: These data are from an U-V Eppley total ultra violet sensor and Speedomax H (Leeds Northrup) Recorder. This instrument has not been checked by the NOAA, National Weather Service.



## DESCRIPTION OF CHARTS

CHART I. A. NORMAL DAILY AVERAGE TEMPERATURE (°F. 1941-70) FOR MONTH. B. TEMPERATURE DEPARTURE FROM 30-YEAR MEAN (°F. 1941-70) FOR MONTH. Chart I-A is reproduced from monthly normals maps prepared at the National Climatic Center. Chart I-B is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin," a publication of Environmental Data Service.

CHART II. A. TOTAL PRECIPITATION. Chart II. A. is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin."

CHART II. B. PERCENTAGE OF NORMAL PRECIPITATION. Chart II. B. is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin."

CHART III. TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.

CHART IV. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL. Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a.m., e.s.t., positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by X's. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Squares indicate position of stationary center for period shown beside it.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), January



B. Temperature Departure from 30 - Year Mean (°F 1941-70), January 1978

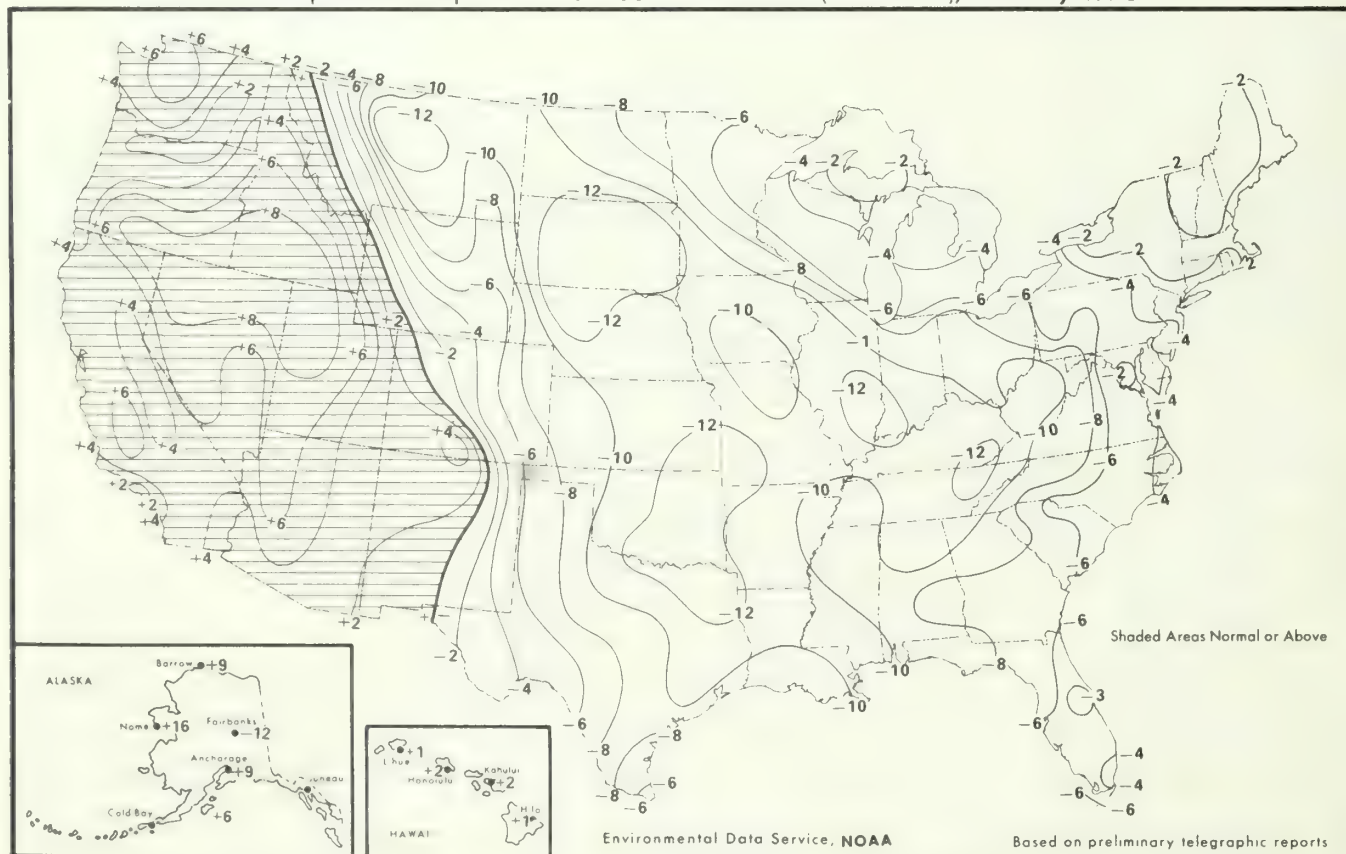
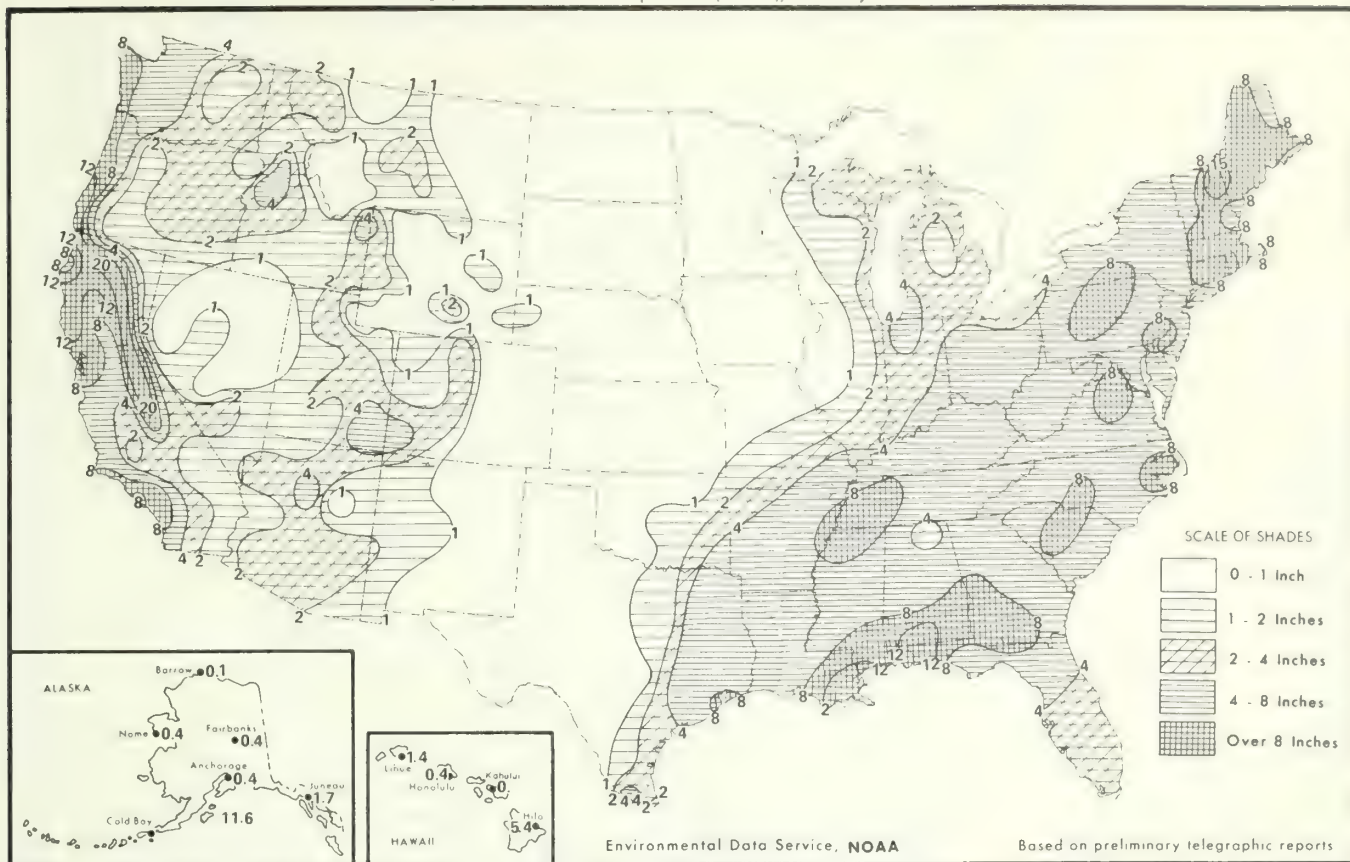




Chart II. A. Total Precipitation (Inches), January 1978



B. Percentage of Normal Precipitation, January 1978

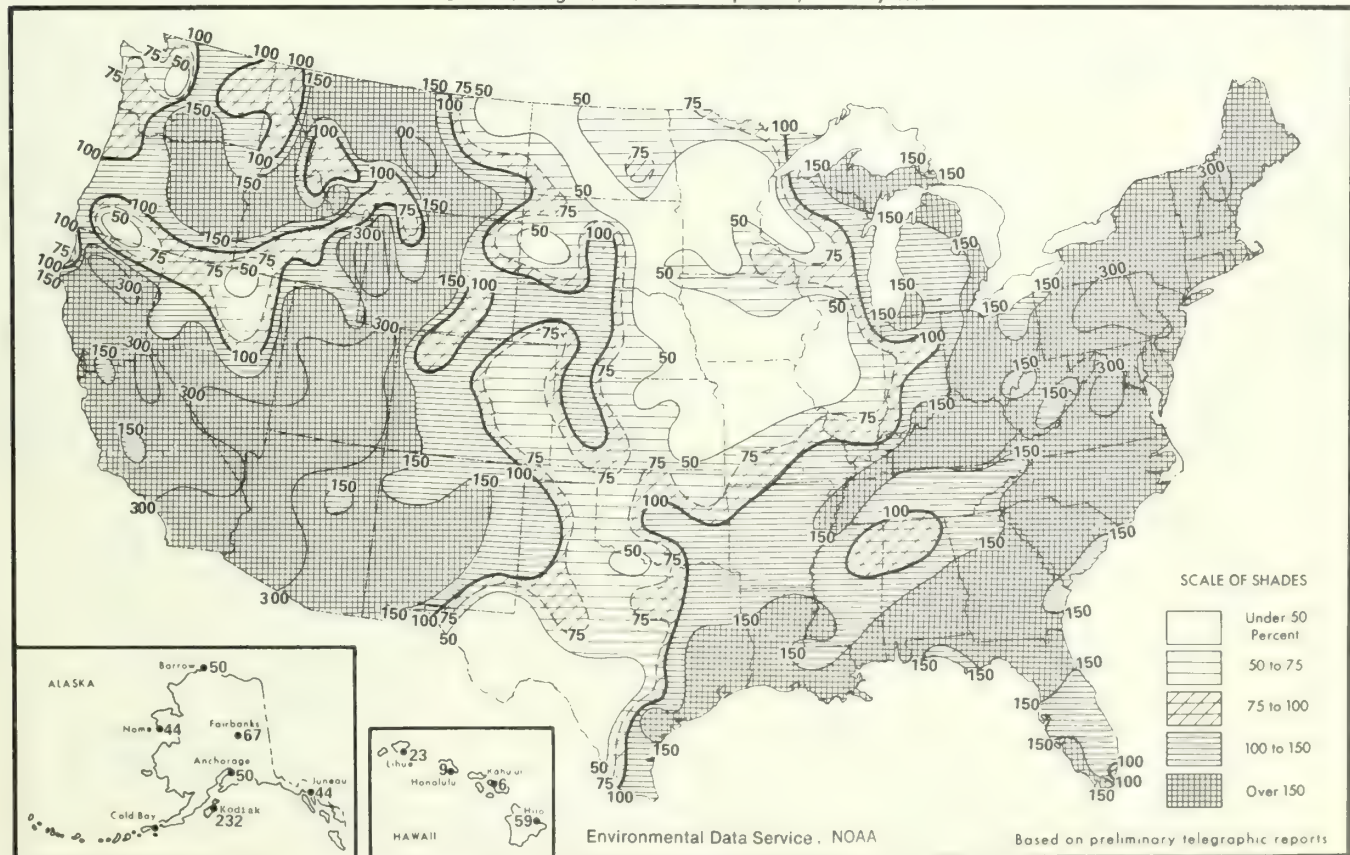
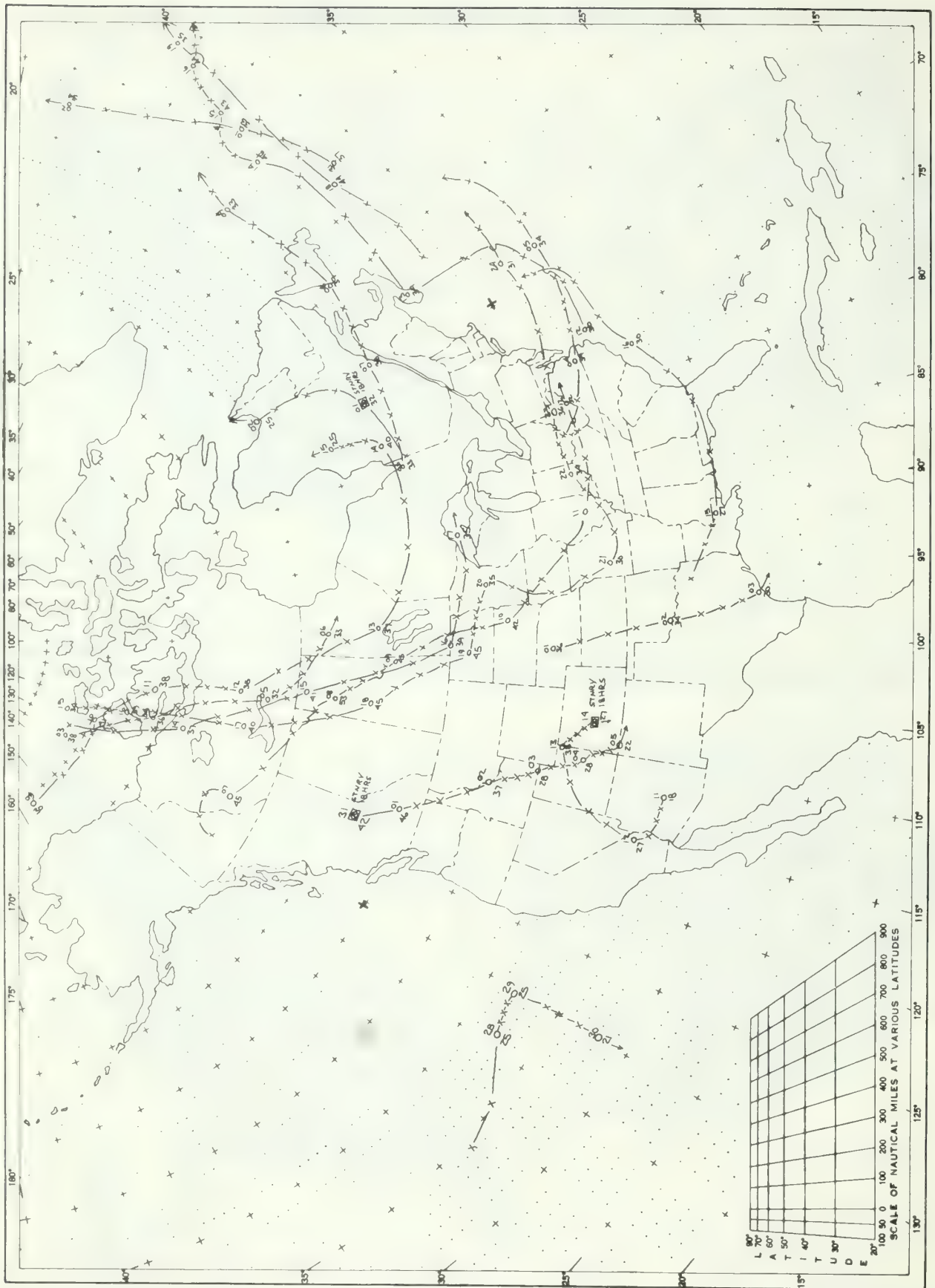


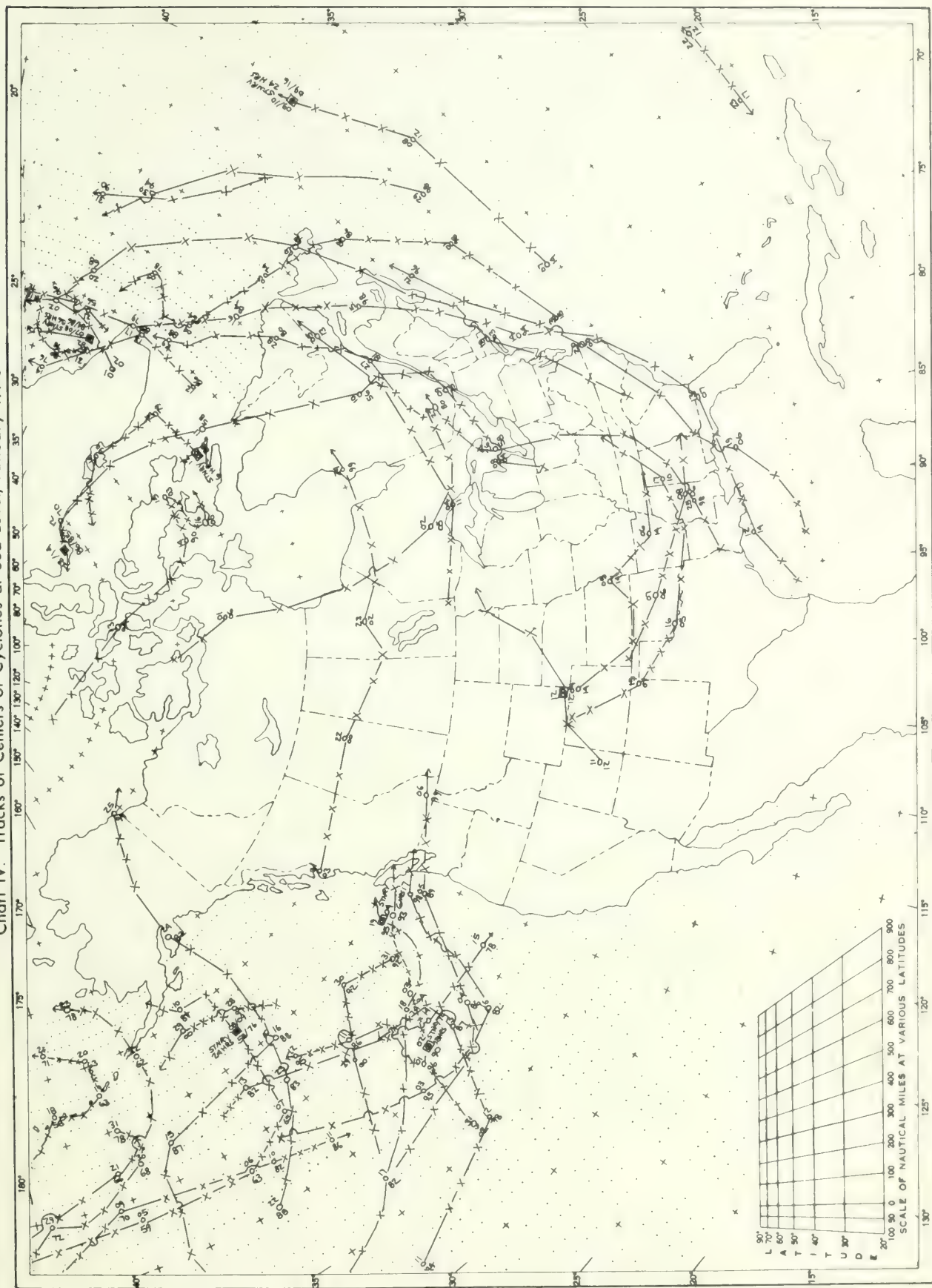
Chart III. Tracks of Centers of Anticyclones at Sea Level, January 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar. 'X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart IV. Tracks of Centers of Cyclones at Sea Level, January 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.







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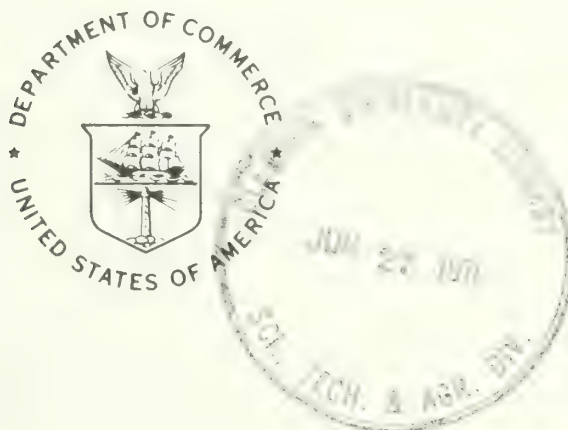
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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



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*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

FEBRUARY 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data Service, NOAA

**HIGHLIGHTS:** It was a frigid winter month for many cities east of the Rockies. For some points, it was one of the coldest Februaries on record. Unlike last year, when sudden warming took place in midmonth, this February continued to be colder than normal from the Continental Divide to the Atlantic and, typical of the entire winter, warmer than normal in the West. Fruit trees in California bloomed much earlier than usual. A slight warming trend started in the Plains and spread eastward near midmonth, but hopes for another early spring were smashed when another Arctic air mass plunged into the northern Plains and rapidly spread southward and eastward.

Again, unlike last year, precipitation for the month stood well above normal from the Great Plains westward. Snow pack approached normal levels in the mountains as did previously depleted reservoirs. There were some exceptions in the West; parts of Washington and Oregon measured much less than normal precipitation. Nearly all of the area from the Mississippi Valley eastward had much below normal precipitation although the amount of snow was generally above normal. This area had been very wet earlier this year so the departure was, for the most part, welcome. The exception was the extreme southeastern United States where rainfall was well above normal.

Precipitation was generally light over most of the Nation during the first week of February. Exceptions included the central Gulf Coast where rain measured a little over an inch, and the Northwest where rain totaled up to an inch on the mountain slopes and 2 to 5 inches on the coastline. Widespread snow fell, but the snow-on-the-ground line receded along its southern boundary. Much colder than normal temperatures continued over the country east of the Rockies, while the West was unusually warm.

The second week of February showed no signs of easing

the severe winter. The Rocky Mountains and areas eastward to the Atlantic were much colder than normal. The southern Plains and parts of the Midwest averaged as much as 15 to 18° colder than expected this time of year. Precipitation fell excessively in many parts of the United States. Early in the week, the Northeast was blanketed by heavy snow. At midweek, the central and southern Plains, and from New Mexico into Mississippi, experienced a mixed bag of precipitation that included snow, sleet, and rain. More than 2 inches fell in eastern Oklahoma and Texas. Later, heavy rain fell in Florida. A storm system dumped heavy rain throughout California after midweek, and moved eastward into the Plateau and Southwest.

Precipitation covered most of the country during the week of mid-February. Snow again fell in the southern Plains and heavy rain washed Florida. The Plateau and Southwest had some heavy snow and rain showers. The central Mississippi Valley and parts of the Ohio Valley added significant amounts to their snow cover.

The cold weather became even more widespread at mid-February while below-normal temperatures extended all the way to the Sierra and Cascade Mountains. The central Plains averaged as much as 22° colder than normal.

Unlike the final ten days of February last year when all of the area east of the Rockies experienced a dramatic warming, a continuing cold pattern froze the Nation east of the Rockies; warm air persisted to the west. The 0°F temperature line remained well south to the Oklahoma plains. Fortunately, snow covered most of the winter wheat providing a welcome blanket against the bitter cold. Light precipitation moved over most of the country during the last ten days until moderate rain began at month's end in southern California and Arizona. The lower Mississippi and Tennessee Valleys measured sizable precipitation during the period.

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

FEBRUARY 1978

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Highland Park	79	14	Russellville 2	7	22	Enterprise 2 N	4.48	Guntersville	.39
Alaska	2 Stations	54	20-	3 Stations	-64	6	Mac Leod Harbor	43.67	2 Stations	.01
Arizona	Yuma Valley	84	24	Heaven Lake	-17	17	Junipine	8.24	Wadsworth	.05
Arkansas	1 Station	72	25-	2 Stations	-4	19-	Gravelly 1 ESE	3.36	Marianna 2 S	D .99
California	1 Station	85	24-	Highway 1	-18	14	Crystal Lake FC 283C	25.50	Mecca Fire Station	.17
Colorado	Canon City	69	25	Taylor Park	-42	18	Bonham Reservoir	4.83	Salida 3 W	T
Connecticut	2 Stations	44	19-	Coventry	-16	9	Mansfield Hollow Lake	2.63	West Thompson Dam	.51
Delaware	1 Station	48	18	Middletown 1 WSW	-1	10	Lees 1 SW	1.87	Middletown 1 WSW	.59
Florida	2 Stations	84	19-	4 Stations	20	23-	Hillsborough River St. Pl.	8.21	Belle Glade Exp. Stn.	1.11
Georgia	Norcross	78	13	Blairsville Exp. Stn.	5	7	Valdosta 3 E	3.74	Curryville 2 W	.44
Hawaii	Puukohola Heiau 98.1	89	26-	2 Stations	28	17	Honolulu Maaka 138	8.84	10 Stations	.00
Idaho	2 Stations	94	23-	Stanley	-25	16	Lowman	4.60	Chilly Barton Flat	.18
Illinois	2 Stations	80	24	Golden 1 NW	-20	6	Mount Olive 1 E	1.55	Rockford 6 ENE	.06
Indiana	Shoals Hwy 50 Bridge	47	13	Wanatah 2 WNW	-21	7	2 Stations	1.60	Cambridge City	.07
Iowa	2 Stations	46	24	Elkader 5 SSW	-29	7	Eddyville	2.45	Sibley	.17
Kansas	1 Station	60	24	1 Station	-19	19-	2 Stations	2.78	Elkader	.34
Kentucky	2 Stations	55	26-	Gray Hawk	-12	7	Russellville	2.41	Covington WSO AP	.25
Louisiana	2 Stations	79	28	Converse	11	22	New Orleans 5 ESE	4.23	Kentwood	1.41
Maine	1 Station	48	18	Bangor	-32	6-	Baldwin 5 NW	2.54	Presque Isle	.07
Maryland	2 Stations	59	25	Oakland 1 SE	-25	20	1 Station	2.33	Boysd 2 NW	D .18
Massachusetts	1 Station	46	17	Chester 2	-25	5	Pembroke	4.55	Adams	.20
Michigan	Cornell 4 WSW	42	12	Waterford	-34	3	Chatham Exp. Farm	2.32	Eaton Rapids	.09
Minnesota	2 Stations	40	24	2 Stations	-39	2	Thorhult	.78	Karlstad	T
Mississippi	Monticello	76	26	University	6	22	1 Station	3.82	Holly Springs 4 N	.71
Missouri	2 Stations	68	25	1 Station	-24	18	Martinsburg	2.44	Tarkio	.54
Montana	2 Stations	59	23	Chinook	-35	16-	Cooke City	3.99	Del Bonita	.12
Nebraska	Kimball	58	24	2 Stations	-26	18-	Mullen	3.40	Sprague	.36
Nevada	2 Stations	76	25-	Central Nevada Field Lab.	-14	12	Proctor	5.72	Parlatona	D .28
New Hampshire	2 Stations	42	18-	2 Stations	-33	6-	2 Stations	2.98	Massabesic Lake	.28
New Jersey	Belleplain State Forest	49	25	Newton St. Pauls Abbey	-12	20-	Oakridge Reservoir	3.37	Seabrook Farms	.22
New Mexico	Jill	80	28	Cuba	-20	18	Hickman	4.27	Abbot	T
New York	2 Stations	45	25-	Old Forge	-42	4	Phoenicia	3.61	Ogdensburg 4 NE	.05
North Carolina	3 Stations	72	26-	Cliffhanger Mountain	-11	7	Cape Hatteras WSO	2.85	Tryon	.15
North Dakota	Watford City 14 S	46	21	Hansboro 4 NNE	-36	5	Bowman Court House	1.88	9 Stations	T
Ohio	2 Stations	44	26	Fredericktown 4 S	-22	15-	Westerville Water Plant	1.07	Caldwell 6 NW	T
Oklahoma	Waurika	80	24	Goodwell Research Station	-11	17	McCurtain 1 SE	3.90	Goodwell Research Stn.	.85
Oregon	3 Stations	72	23-	Danner	-5	16	Port Orford 5 E	16.04	Hart Mountain Refuge	.19
Pennsylvania	Marcus Hook	50	25	Clermont 4 NW	-27	4	Honesdale 4 NW	2.66	2 Stations	.27
Puerto Rico	Vieques Island	93	26	Adjuntas Substation	47	15	Cajonaca Lake	13.80	Jayuya 1 SE	.00
Rhode Island	3 Stations	45	17	Kingsland	-9	9	North Foster 1 E	4.51	Block Island WSO AP	1.25
South Carolina	Walterboro 2 SW	75	25	Jacksons Beat	-1	7	Ridgeland 5 NE	3.45	Holback Mountain	.18
South Dakota	1 Station	56	21	Hilandean	-33	2	Fairb	2.71	Arlington 3 SW	.12
Tennessee	Chattanooga WSO AP	67	25	Sevierville 1 SE	-8	8	Dover 1 W	D 2.53	Conasauga 2 N	.37
Texas	Zapata	90	28	Floydada	-5	18	Port O Connor	5.64	Sheffield	.05
Utah	La Verkin	71	25	Woodruff	-26	17	Snowbird	D 8.51	Fort Duchesne	.03
Vermont	Vernon	40	26-	Enosburg Falls	-32	4	Mount Mansfield	1.91	2 Stations	.10
Virginia	3 Stations	69	26-	Mt. Lake Biological Stn.	-9	7	Norfolk WSO AP	1.91	2 Stations	T
Virgin Islands	2 Stations	88	25-	Beth Upper New Works	64	16	Catherinesburg	2.70	Castle Nugent	.79
Washington	Grays River Hatchery	70	20	Waterville	1	2	New Rav 1 E	14.43	Irene Mt. Wauconda	.65
West Virginia	5 Stations	52	26-	2 Stations	-18	20	Snowshoe	D 2.65	New Cumberland	.13
Wisconsin	1 Station	41	24	2 Stations	-35	3	Madeline Island	1.12	Rosholt	.01
Wyoming	Carpenter 3 E	58	23	Bondurant 3 NW	-31	17	Snake River	4.82	La Barge 4 WNW	.19



CLIMATOLOGICAL DATA

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FEBRUARY 1978

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind			No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		Station	Sea level	Average			Departure from normal			Highest	Lowest	Date		No. of days		Average dew point	Average relative humidity			Total	Departure from normal				Greatest in 24 hours	With thunderstorms	No. of days	Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed (1.6 kilometers)		Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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## METRIC UNITS

FEBRUARY 1972

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# CLIMATOLOGICAL DATA

## METRIC UNITS

FEBRUARY 1978

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation				Wind			No. of days (sunrise to sunset)	Sky cover (tenths)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Station	Sea level	Average maximum		Average minimum		Average		Departure from normal		Highest		Lowest		Date		No. of days		Average dew point				Average relative humidity		Total	mm	mm	m/s	m/s	Resultant direction	Resultant speed	Direction	Date	Clear 0-3	Partly cloudy 4-7	Cloudy 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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# CLIMATOLOGICAL DATA

## METRIC UNITS

FEBRUARY 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind			No. of days (sunrise to sunset)		°																																																																																																																																																																																																																																																																																																																																														
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32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or 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above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0 °C or lower	Date	Max 32.2 °C or above	Min 0

## CLIMATOLOGICAL DATA

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Station	Elevation ft	Pressure		Temperature				Precipitation				Wind				No. of days sunrise to sunset		Poss. sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		Station mb	Sea level mb	Average maximum		Average minimum		Departure from normal	Highest	Date	Lowest	Date	Highest	Date	Lowest				Departure from normal	Greatest in 24 hours	25 mm. or more	No. of days	With thunderstorms	Snow ice pellets	Maximum depth mm	Total mm	Resultant speed m/s	Resultant direction	Speed m/s	Direction (10 kilometers)	Date	Clear 0-3	Partly cloudy 4-7	Cloudy 8-10	Sky cover, tenths																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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## METRIC UNITS

FEBRUARY 1979

- 11 -

## HEATING DEGREE DAYS

(Base 65°F.)

FEBRUARY 1978

State and Station	Current season			State and Station	Current season			State and Station	Current season			State and Station	Current season		
	This month	Period July through this month	Normal July through this month		This month	Period July through this month	Normal July through this month		This month	Period July through this month	Normal July through this month		This month	Period July through this month	Normal July through this month
ALABAMA				ALABAMA				ALABAMA				ALABAMA			
BIRMINGHAM	768	2843	2319	BOISE	744	3761	4203	NEBRASKA	1395	5408	4425	BRISTOL	1005	3958	3334
JACKSONVILLE	845	3225	2464	LEWISTON	873	3834	4022	GRAND ISLAND	1447	5628	4727	CHATTANOOGA	821	3243	2806
MOBILE	581	1943	1429	POCATELLO	875	4416	5086	NORFOLK	1477	5906	5243	KNOXVILLE	846	3326	2774
MONTGOMERY	661	2087	1886					NORTH PLATTE	1400	4757	4964	MEMPHIS	835	2906	2617
ALASKA				ILLINOIS				OMAHA	1375	5352	4625	NASHVILLE	996	3644	2951
ANCHORAGE	1077	7031	7845	CAIRO U	1046	3736	3076	OMAHA (NORTH) WSD	1437	5648	4984	DAK RIDGE	946	3807	3096
ANNETTE	721	4904	4757	CHICAGO O HARE	1346	5325	4818	SCOTTSDALE	1199	5076	4887				
BARROW	2223	12467	13410	CHICAGO MIDWAY	1346	5291	4566	VALENTINE	1526	6253	5330	TEXAS			
BARTER ISLAND	2220	12324	13284	COLINE	1417	5634	4847					ABILENE	730	2538	2141
BETHLEHEM	1463	8276	9152	PEORIA	1383	5476	4626	NEVADA				AMARILLO	972	3320	3216
BETTES	1872	10725	11429	ROCKFORD	1471	5967	5114	ELKO	845	4181	5312	AUSTIN	561	1817	1470
BIG BAY	1454	9614	10150	SPRINGFIELD	1348	5065	4257	FLY	939	4791	5394	BROWNSVILLE	286	754	561
BUOY BAY	1017	6014	6413					LAS VEGAS	346	1506	2141	CORPUS CHRISTI	382	1104	810
FAIRBANKS	1712	10443	10781	INDIANA				RENO	739	3673	4237	DALLAS FT WORTH	786	2596	1939
GULKANA	1020	10351	10334	EVANSVILLE	1228	4362	3613	WINNEMUECCA	742	3860	4679	DEL RIO	422	1412	1344
HOMER	987	6739	7112	FORT WAYNE	1482	5407	4619					EL PASO	449	1908	2261
JUNEAU	922	6202	6584	INDIANAPOLIS	1313	4791	4234	NEW HAMPSHIRE				GALVESTON	501	1414	1017
KING SALMON	1121	7582	8471	SOUTH BEND	1401	5243	4754	CONCORD	1435	5889	5349	HOUSTON INTERCON	553	1894	1222
KONTAK	1884	9879	5862					MT WASHINGTON OBS	1855	9756	9402	LUBBOCK	864	2942	2818
KOTZABE	1867	9504	10743	IOWA								MIDLAND	386	2229	2174
MC GRATH	1632	9820	10460	BURLINGTON	1365	5428	4674	NEW JERSEY				PORT ARTHUR	497	1808	1283
MOHE	1447	8513	9639	DES MOINES	1442	5593	5069	ATLANTIC CITY	1146	3923	3666	SAN ANGELO	588	2089	1879
ST. PAUL ISLAND	1049	6394	7491	MURRUE	1491	6322	5439	ATLANTIC CITY U	1031	3691	3331	SAN ANTONIO	521	1705	1345
TALKEETNA	1159	7990	8404	SIOUX CITY	1534	5991	5271	NEWARK	1099	4138	3736	VICTORIA	467	1442	1059
TALAKEET	1489	9014	9678	WATERLOO	1610	6741	5586	TRENTON U	1040	4036	3699	WACO	639	2090	1722
VALDEZ	1208	6643	7408									WICHITA FALLS	881	3013	2370
YAKUTAT	847	6356	6454	KANSAS				NEW MEXICO				UTAH			
ARIZONA				CONCORDIA	1299	4913	4267	ALBUQUERQUE	713	3084	3357	MILFORD	794	3972	4688
FLAGSTAFF	954	4161	4999	RODGEE CITY	121	4280	3824	CLAYTON	688	3847	3803	SALT LAKE CITY	697	3448	4397
PHOENIX	172	623	1907	GODOLPH	1263	4932	4469	ROSWELL	593	2456	3004				
TUCSON	313	1038	1428	TOPEKA	1240	4719	4034					VERMONT			
WINSLOW	720	3090	3421	WICHITA	1149	4185	3644	NEW YORK				BURLINGTON	1547	5998	5709
YUMA	136	554	884	KENTUCKY				ALBANY	1306	5176	5073				
ARKANSAS				COVINGTON	1303	4872	3860	RINGHAMTON	1392	5591	5234	VIRGINIA			
PORT SMITH	924	3359	2716	LEXINGTON	1219	4310	3640	RUFFALO	1378	5174	4925	LYNCHBURG	972	3763	3283
MO. LITTLE ROCK	921			LOUISVILLE	1145	4147	3588	NEW YORK U	1051	3981	3583	NORFOLK	902	2902	2677
LITTLE ROCK	862	3071	2724	LOUISIANA				NEW YORK KENNEDY	1042	4062	3737	SPokane	964	3386	3080
CALIFORNIA				BATON ROUGE	546	1827	1429	NEW YORK LA GUARDIA	1041	3973	3609	ROANOK	989	3896	3312
BAKERSFIELD	241	963	1757	LAKE CHARLES	539	1740	1272	ROCHESTER	1340	5062	4492	WALLOPS ISLAND	963	3491	3139
RIENH	622	2810	3213	NEW ORLEANS	556	1700	1244	SYRACUSE	1322	5095	4419				
BLUE CANYON	786	3547	3412	SHREVEPORT	746	2560	1804	NORTH CAROLINA				WASHINGTON			
BURKA U	464	2717	3424	MAINE				ASHVEHLE	878	3658	3252	OLYMPIA	596	3870	3812
FRESNO	343	1323	2464	CARIBOU	1467	6816	6856	CAPE HATTERAS R	813	2320	2034	OUTLAWAY	585	3862	3937
LONG BEACH	223	652	1117	PORTLAND	1276	5443	5314	CHARLOTTE	785	2911	2574	SEATTLE	522	3143	3282
LOS ANGELES	184	581	1172	MARYLAND				GREENSBORO	927	3560	3019	SEATTLE-TACOMA	525	3127	3568
LOS ANGELES U	174	580	864	BALTIMORE				RALEIGH	883	3263	2784	SPokane	862	3699	4944
MT SHASTA R	730	3970	4017	MASSACHUSETTS				WILMINGTON	736	2357	1975	STAMPEDE PASS R	1011	6974	6277
OAKLAND	303	1399	1982	BLUE HILL OBS R	1188	4806	4525	NORTH DAKOTA				WALLA WALLA U	650	3642	3640
REAR BLUFF	339	1576	2032	BOSTON	1057	4073	4050	BISMARCK	1564	7418	6686	YAKIMA	793	4339	4492
SACRAMENTO	342	1679	2104	WORCESTER	1255	5245	4914	FARGO	1721	7639	6894	WEST VIRGINIA			
SANDBERG R	623	2326	2886					HILLISTON	1600	7645	6754	BECKLEY	1211	4656	4175
SAN JERGO	326	1113	1413	MICHIGAN				CHIO				CHARLESTON	1138	4166	3538
SAN FRANCISCO	335	1730	2040	ALPENA	1421	6144	5963	AKRON	1366	5092	4572	ELAINS	1349	5070	4403
SAN FRANCISCO U	249	1649	2006	DETROIT	1282	4813	4339	CINCINNATI ABBE OB	1210	4503	3720	HUNTINGTON	1122	4075	3556
SANTA MARIA	305	1324	1960	DETROIT METRO	1357	5331	4699	CLEVELAND	1343	4893	4473	PARKERSBURG U	1185	4347	3684
STOCKTON	358	1585	2129	ELINT	1438	5428	5093	COLUMBUS	1346	4899	4295				
COLORADO				GRAND RAPIDS	1413	5434	4944	DAYTON U	1339	4935	4243	WISCONSIN			
ALAMOSA	1163	5545	6230	HOUGHTON LAKE	1513	6298	5954	HANSFIELD	1390	5162	4309	GREEN RAY	1900	6327	5905
COLORADO SPRINGS	1036	4499	4884	LANSING	1496	5629	5026	TOLEDO	1484	5512	4717	LA CROSSE	1515	6349	5581
DENVER	936	4211	4290	MARQUETTE U	1295	5897	5804	YOUNGSTOWN	1378	5106	4686	HADISON	1466	6278	5691
DORR JUNCTION	892	3883	4810	MUSKEGON	1374	5418	4914					MILWAUKEE	1356	6682	5953
DURBLO	1001	4227	4438	SAULT STE MARIE	1503	6797	6422	OKLAHOMA				WYOMING			
CONNECTICUT				MINNESOTA				OKLAHOMA CITY	990	3483	2947	CASPER	1191	5567	5297
BRIDGEPORT	1196	4036	3874	DULUTH	1520	7300	6999	TULSA	989	3557	2944	CHEYENNE	1115	5213	5001
HARTFORD	1192	4739	4670	INTERNATIONAL FALLS	1745	8358	7737	OREGON				LANDER	1192	5592	5632
DELAWARE				MINNEAPOLIS	1488	6639	6084	ASTORIA	524	3325	3491	SHERIDAN	1323	6276	5469
WILMINGTON	1179	4254	3706	ROCHESTER	1581	6747	6086	RURNS U	923	4831	5085				
DIST OF COLUMBIA				ST CLOUD	1561	7118	6584	EUGENE	576	3229	3284				
WASHINGTON DULLES	1066	4100	3798	MISSISSIPPI				PENDLETON	571	3067	3516				
WASHINGTON NATIONAL	933	3366	3357	JACKSON	706	2507	1907	PORTLAND	714	4160	3870				
FLORIDA				MERIDIAN	714	2347	1996	SALEM	561	3205	3374				
APPA LACHICOLA U	498	1844	1156	MISSOURI				SEXTON SUMMIT R	547	3203	3354				
DAYTONA BEACH	356	1035	760	COLUMBIA REGIONAL	1206	4539	3906								
PORT MYERS	216	600	409	KANSAS CITY	1266	4834	4124	PENNSYLVANIA							
JACKSONVILLE	484	1543	1127	ST JOSEPH	1361	4878	4204	ALLENTOWN	1190	4550	4329				
KEY WEST	85	213	59	ST LOUIS	1223	4586	3684	BRIE	1408	5217	4834				
LAKELAND U	277	839	884	SPRINGFIELD	1172	4233	3531	HARRISBURG	1175	4368	3982				
MIAMI	99	286	189					PHILADELPHIA	1121	4178	3660				
MIAMI	285	753	626	MONTANA				PITTSBURGH	1229	4734	4414				
PENSACOLA	444	1722	1430	BILLINGS	1366	6132	5185	PITTSBURGH U	1147	4431	3962				
TALLAHASSEE	548	1849	1942	GLASGOW	1610	7698	6574	SCRANTON	1279	4949	4434				
TAMPA	323	936	619	GREAT FALLS	1410	6672	5404	WILLIAMSPORT	1239	4762	4454				
WEST PALM BEACH	148	444	274	HAYRE	1473	7055	6384								
GEORGIA				HELENA	1175	4042	5864	RHODE ISLAND							
ATLANTA	721	2784	2401	KALISPELL	1098	4245	6104	PROVIDENCE	1073	3972	3880				
AUGUSTA	714	2876	2481	MILES CITY	1499	6841	5814								
COLUMBUS	689	2432	2101	MISSOULA	1050	4637	5717	SOUTH CAROLINA							
MACON	654	2241	1960					CHARLESTON	616	2025	1772				
ROME	617	2248	1870					CHARLESTON U	601	1949	1570				
SAVANNAH	594	1947	1633					COLUMBIA	741	2690	2143				
								GRNVILLE-SPRTNBRG	787	2892	2540				
								SOUTH DAKOTA							
								ABERDEEN	1630	7299	6423				
								HURON							



# COOLING DEGREE DAYS

(Base 65°F.)

FEBRUARY 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM	0	0	19	HONOLULU	215	411	362	GRAND ISLAND				CHARLESTON	0	0	25
ANNETTE	0	0	4	KAMAHOI	238	570	439	LINCOLN				CHESAPEAKE	0	0	3
MOBILE	0	0	52	LIHUE	229	515	398	DOVER				COLUMBIA	0	0	4
MONTGOMERY	0	1	30		205	429	312	NORTH PLATTE				DURHAM	0	0	4
ALASKA				IDAHO				OMAHA				EL PASO			
ANCHORAGE	0	0	0	BOISE	0	0	0	OMAHA (NORTH) WFO				NEW YORK	0	0	0
ANNETTE	0	0	0	LEWISTON	0	0	0	SCHOTTSLUFF				NEWARK	0	0	0
BARROW	0	0	0	POCATELLO	0	0	0	VALENTINE				RAPID CITY	0	0	0
BARTER ISLAND	0	0	0									SIOUX FALLS	0	0	0
BETHEL	0	0	0	ILLINOIS				NEVADA							
BETHEL	0	0	0	CAIRO	0	0	0	ELY				TENNESSEE			
RIG DELTA	0	0	0	CHICAGO O HARE	0	0	0	LAS VEGAS				ATLANTA	0	0	0
COLD BAY	0	0	0	CHICAGO MIDWAY	0	0	0	RENO				CHATTANOOGA	0	0	0
FAIRBANKS	0	0	0	MOLINE	0	0	0	WINNEVOCA				CHICAGO	0	0	0
GULF BAY	0	0	0	PEORIA	0	0	0					MEMPHIS	0	0	0
HOMER	0	0	0	ROCKFORD	0	0	0	NEW HAMPSHIRE				NASHVILLE	0	0	0
JUNEAU	0	0	0	SPRINGFIELD	0	0	0	CONCORD				SAFARI	0	0	0
KING SALMON	0	0	0					MT WASHINGTON OBS							
KODIAK	0	0	0	INDIANA				NEW JERSEY				TEXAS			
KOTZEBE	0	0	0	EVANSVILLE	0	0	0	ATLANTIC CITY				ATLANTA	0	0	0
MC GRATH	0	0	0	FORT WAYNE	0	0	0	ATLANTIC CITY J				ATLANTA	0	0	0
NOME	0	0	0	INDIANAPOLIS	0	0	0	NEWARK				ATLANTA	0	0	0
ST. PAUL ISLAND	0	0	0	SOUTH BEND	0	0	0	TRENTON				ATLANTA	0	0	0
TALKEETNA	0	0	0									ATLANTA	0	0	0
UNALASKA EFT	0	0	0	IOWA				NEW MEXICO				ATLANTA	0	0	0
VALDEZ	0	0	0	BURLINGTON	0	0	0	ALBUQUERQUE				ATLANTA	0	0	0
VAKUTAT	0	0	0	DES MOINES	0	0	0	CLAYTON				ATLANTA	0	0	0
				DURHAM	0	0	0	ROSWELL				ATLANTA	0	0	0
ARIZONA				SIOUX CITY	0	0	0					ATLANTA	0	0	0
FLAGSTAFF	0	0	0	WATERLOO	0	0	0					ATLANTA	0	0	0
PHOENIX	1	4	14					NEW YORK				ATLANTA	0	0	0
TUCSON	0	0	11	KANSAS				ALBANY				ATLANTA	0	0	0
WINSLOW	0	0	0	CONCORDIA	0	0	0	BINGHAMTON				ATLANTA	0	0	0
YUMA	3	3	46	DODGE CITY	0	0	0	RUFFALO				ATLANTA	0	0	0
				GODLAND	0	0	0	NEW YORK				ATLANTA	0	0	0
ARKANSAS				TOPEKA	0	0	0	NEW YORK KENNEDY				ATLANTA	0	0	0
PORT SMITH	0	0	0	WICHITA	0	0	0	NEW YORK LA GUARDIA				ATLANTA	0	0	0
NO. LITTLE ROCK	0	0	0					ROCHESTER				ATLANTA	0	0	0
LITTLE ROCK	0	0	0	KENTUCKY				SYRACUSE				ATLANTA	0	0	0
				COVINGTON	0	0	0					ATLANTA	0	0	0
CALIFORNIA				LEXINGTON	0	0	0	NORTH CAROLINA				ATLANTA	0	0	0
BAKERSFIELD	3	3	0	LOUISVILLE	0	0	0	ASHEVILLE				ATLANTA	0	0	0
ATHENS	0	0	0					CAPE HATTERAS R				ATLANTA	0	0	0
BLUE CANYON	0	0	0	LOUISIANA				CHARLOTTE				ATLANTA	0	0	0
BUREKA U	0	0	0	BATON ROUGE	0	8	41	GREENSBORO				ATLANTA	0	0	0
FRESNO	0	0	0	LAKE CHARLES	2	7	57	RALEIGH				ATLANTA	0	0	0
LONG BEACH	0	0	7	NEW ORLEANS	0	5	67	WILMINGTON				ATLANTA	0	0	0
LOS ANGELES	3	3	12	SHREVEPORT	0	5	10					ATLANTA	0	0	0
LOS ANGELES	8	8	24					NORTH DAKOTA				ATLANTA	0	0	0
MT SHASTA R	0	0	0	MAINE				BISMARCK				ATLANTA	0	0	0
PAKLAND	0	0	0	CARROLL	0	0	0	FARGO				ATLANTA	0	0	0
RED BLUFF	0	0	0	PORTLAND	0	0	0	WILLISTON				ATLANTA	0	0	0
SACRAMENTO	0	0	0									ATLANTA	0	0	0
SANDREBO R	0	0	0	MARYLAND								ATLANTA	0	0	0
SAN DIEGO	7	8	19	BALTIMORE	0	0	0	OHIO				ATLANTA	0	0	0
SAN FRANCISCO	0	0	0					AKRON				ATLANTA	0	0	0
SAN FRANCISCO	0	0	0	MASSACHUSETTS				CINCINNATI				ATLANTA	0	0	0
SANTA MARIA	0	0	0	BLUE HILL OBS R	0	0	0	CLEVELAND				ATLANTA	0	0	0
STOCKTON	0	0	0	ROSTON	0	0	0	COLUMBUS				ATLANTA	0	0	0
				WORCESTER	0	0	0	DAYTON				ATLANTA	0	0	0
								MANFIELD				ATLANTA	0	0	0
COLORADO								TOLEDO				ATLANTA	0	0	0
ALAMOSA	0	0	0	MICHIGAN				YOUNGSTOWN				ATLANTA	0	0	0
COLORADO SPRINGS	0	0	0	ALPINE	0	0	0					ATLANTA	0	0	0
DENVER	0	0	0	DETROIT	0	0	0	OKLAHOMA				ATLANTA	0	0	0
GRAND JUNCTION	0	0	0	DETROIT METRO	0	0	0	OKLAHOMA CITY				ATLANTA	0	0	0
PUEBLO	0	0	0	FLINT	0	0	0	TULSA				ATLANTA	0	0	0
				GRAND RAPIDS	0	0	0					ATLANTA	0	0	0
CONNECTICUT				HOUGHTON LAKE	0	0	0	OREGON				ATLANTA	0	0	0
BRIDGEPORT	0	0	0	LANSING	0	0	0	ASTORIA				ATLANTA	0	0	0
HARTFORD	0	0	0	MARQUETTE J	0	0	0	BURNS				ATLANTA	0	0	0
				MUSKOGEE	0	0	0	EUGENE				ATLANTA	0	0	0
DELAWARE				SAULT STE MARIE	0	0	0	MEMPHIS				ATLANTA	0	0	0
WILMINGTON	0	0	0					PORTLAND				ATLANTA	0	0	0
				MINNESOTA				SEXTON SUMMIT R				ATLANTA	0	0	0
DIST. OF COLUMBIA				DULUTH	0	0	0					ATLANTA	0	0	0
WASHINGTON DULLES	0	0	0	INTERNATIONAL FALLS	0	0	0					ATLANTA	0	0	0
WASHINGTON NATIONAL	0	0	0	MINNEAPOLIS	0	0	0					ATLANTA	0	0	0
				ROCHESTER	0	0	0					ATLANTA	0	0	0
FLORIDA				ST CLOUD	0	0	0	PACIFIC AREA				ATLANTA	0	0	0
APALACHICOLA U	0	0	50					GUAM TAGUAC R	329	697	725	ATLANTA	0	0	0
DAYTONA BEACH	0	14	96	MISSISSIPPI				JOHNSTON	346	757	688	ATLANTA	0	0	0
PORT MYERS	3	42	197	JACKSON	0	2	31	WADSWORTH	429	942	942	ATLANTA	0	0	0
JACKSONVILLE	0	5	63	MERIDIAN	0	1	31	KWAJALEIN	445	990	961	ATLANTA	0	0	0
KEY WEST	40	115	403					MAJURO	458	964	944	ATLANTA	0	0	0
LAKELAND U	3	20	147	MISSOURI				PAGE PAGO	472	973	967	ATLANTA	0	0	0
MIAMI	54	151	264	COLUMBIA REGIONAL	0	0	0	PONAPE R	449	967	924	ATLANTA	0	0	0
MIAMI	3	29	138	KANSAS CITY	0	0	0	TRUK MOEN ISLAND	475	989	947	ATLANTA	0	0	0
PENSACOLA	0	0	64	ST JOSEPH	0	0	0	WAKE	338	712	707	ATLANTA	0	0	0
TALLAHASSEE	0	0	61	ST LOUIS	0	0	0	YAP R	417	893	911	ATLANTA	0	0	0
TAMPA	0	18	147	SPRINGFIELD	0	0	0					ATLANTA	0	0	0
WEST PALM BEACH	27	105	220					PENNSYLVANIA				ATLANTA	0	0	0
				MONTANA				ALLENSTOWN	0	0	0	ATLANTA	0	0	0
GEORGIA				BILLINGS	0	0	0	ELI	0	0	0	ATLANTA	0	0	0
ATHENS	0	0	0	GLASGOW	0	0	0	HARRISBURG	0	0	0	ATLANTA	0	0	0
ATLANTA	0	0	0	GREAT FALLS	0	0	0	PHILADELPHIA	0	0	0	ATLANTA	0	0	0
AUGUSTA	0	0	14	HAYES	0	0	0	PITTSBURGH	0	0	0	ATLANTA	0	0	0
COLUMBUS	0	0	27	HELENA	0	0	0	SCRANTON	0	0	0	ATLANTA	0	0	0
MACON	0	0	24	KALISPELL	0	0	0	WILLIAMSPORT	0	0	0	ATLANTA	0	0	0
ROME	0	0	0	MILES CITY	0	0	0					ATLANTA	0	0	0
SAVANNAH	0	0	33	MISSOULA	0	0	0	RHODE ISLAND				ATLANTA	0	0	0
								ALCOCK ISLAND				ATLANTA	0	0	0
								PROVIDENCE				ATLANTA	0	0	0

## STORM SUMMARY

FEBRUARY 1978

[illegible]



## Average monthly values

AMARILLO, C. TX

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Average monthly values

FEBRUARY 1978

CARBON, ME 988 MB							CENTREVILLE, AL 1003 MB							CHARLESTON, SC 1017 MB							CHATHAM, MA 1012 MB							CHIHUAHUA, MEXICO 857 MB						
Standard pressure, surface mb	No. of observations	Dynmic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynmic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynmic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynmic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynmic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps				
5FC	24	191	-13.3	-16.6	3	2.6	20	140	-5	-5.7	34	1.8	28	13	1.9	-2.9	33	1.9	28	16	-4.0	-8.4	33	2.8	28	1,428	5.7	-6.9	24	1.6				
1000	24	690	-13.2	-15.9	31	6.4	20	178	-9	-9.7	36	2.5	28	13	1.1	-2.8	36	2.6	28	12	-3.5	-7.9	33	4.0	28	1,428	5.7	-6.9	24	1.6				
900	24	902	-14.0	-17.4	32	7.1	20	1,011	-8	-9.3	28	6.1	28	1,004	1.9	-7.2	30	4.9	28	935	-9.1	-13.7	33	5.3	28	1,503	5.7	-6.9	23	1.6				
800	24	1,336	-16.6	-18.9	32	6.2	20	1,470	-8	-12.5	29	8.7	28	1,465	1.0	-9.8	28	7.4	28	1,376	-10.3	-20.2	30	6.7	26	1,503	5.7	-6.9	23	1.6				
700	24	1,755	-19.5	-22.1	32	5.8	20	1,956	-7	-12.7	29	10.6	28	1,951	-1	-13.8	28	10.4	28	1,842	-11.4	-24.0	29	8.6	24	1,994	6.1	-7.2	24	3.6				
600	24	2,280	-17.5	-23.0	31	6.0	20	2,795	-2.4	-15.2	28	13.2	28	2,466	-2.1	-15.3	28	13.9	28	2,330	-12.9	-27.1	29	10.1	28	2,519	2.7	-10.2	25	0.0				
500	24	2,795	-20.6	-25.3	30	6.0	20	3,310	-7	-18.5	27	15.6	28	3,12	-7	-19.7	27	18.5	28	2,84	-9	-24.4	29	11.3	28	3,074	6.1	-14.1	26	9.5				
400	24	3,343	-22	-28.9	29	7.2	20	3,956	-7.6	-22.1	28	18.2	28	3,592	-7.7	-19.4	27	19.7	28	3,448	-17.7	-25.8	28	12.8	24	3,664	-9.1	-19.9	26	10.2				
300	24	3,927	-25.5	-33.1	28	8.2	26	4,215	-11.1	-24.5	27	21.0	28	4,210	-11.4	-22.5	27	22.1	28	4,013	-21.1	-32.0	28	15.6	28	4,293	-7.0	-23.7	26	11.2				
200	24	4,555	-29.2	-37.4	28	9.2	25	4,879	-15.3	-29.5	27	23.4	28	4,873	-15.4	-25.7	27	25.9	28	4,651	-24.8	-35.0	27	18.4	24	4,966	-11.6	-27.6	27	13.1				
100	24	5,229	-33.6	-41.4	27	9.1	25	5,592	-19.9	-34.9	27	26.3	28	5,587	-19.7	-29.7	27	29.8	28	5,337	-29.4	-39.7	27	20.5	28	5,688	-17.0	-33.4	27	16.1				
50	24	5,755	-38.5	-44.7	27	11.7	25	6,366	-21.2	-39.0	27	28.4	28	6,361	-24.9	-35.4	27	32.6	28	6,082	-34.7	-44.7	27	22.9	28	6,470	-22.8	-35.5	26	18.2				
0	24	6,575	-43.7	-48.7	26	12.1	25	7,210	-31.4	-44.3	27	30.9	28	7,208	-30.6	-40.6	27	34.8	28	6,894	-40.6	-48.3	27	25.8	28	7,323	-29.3	-40.3	27	20.0				
500	24	7,043	-49.3		26	13.2	24	8,144	-37.1	-47.8	27	33.5	28	8,147	-37.2	-42.7	27	41.6	28	7,794	-46.5		27	29.6	28	8,267	-35.6	-42.5	27	25.8				
400	24	7,640	-56.2		26	13.5	23	9,183	-45.2		26	41.6	28	9,193	-44.3		26	47.7	28	8,804	-51.0		27	34.8	28	9,322	-41.9	-45.8	27	21.8				
300	24	9,808	-56.2		26	15.2	21	10,384	-51.1		26	43.7	28	10,399	-49.7		26	57.4	28	9,985	-52.4		27	37.6	28	10,541	-47.9		27	26.8				
200	24	11,244	-52.7		26	18.2	21	11,832	-51.9		26	49.9	28	11,848	-52.7		26	59.6	27	11,433	-50.6		27	35.4	28	12,000	-52.2		27	42.1				
100	24	12,108	-52.8		26	19.8	21	12,693	-54.3		26	45.2	28	12,708	-54.3		26	56.9	27	12,303	-50.7		27	35.1	28	12,858	-55.4		27	40.4				
50	24	13,109	-52.8		26	21.5	21	13,677	-56.6		27	44.9	27	13,690	-57.2		27	52.7	27	13,306	-51.6		27	34.5	28	13,833	-59.5		27	38.2				
0	24	14,283	-53.0		26	22.2	21	14,824	-60.1		27	44.5	27	14,833	-61.1		27	45.3	27	14,485	-53.4		27	33.1	28	14,961	-64.4		27	32.1				
500	24	15,718	-56.6		26	21.2	21	16,203	-64.0		27	49.6	26	16,202	-65.1		26	37.0	27	15,911	-56.3		27	29.7	27	16,309	-68.7		27	27.0				
400	24	17,143	-55.6		26	21.1	21	17,567	-64.6		27	25.1	29	17,557	-65.0		27	28.6	25	17,320	-57.8		27	25.9	29	17,442	-70.0		27	20.2				
300	24	17,799	-56.5		26	19.7	21	18,381	-64.9		27	21.3	29	18,371	-66.2		27	23.2	29	18,191	-58.3		27	23.3	29	18,433	-61.7		27	15.8				
200	24	18,968	-57.0		26	19.5	21	19,322	-64.5		27	19.8	25	19,308	-65.7		27	19.1	25	19,125	-59.0		27	21.2	20	19,362	-67.8		27	11.5				
100	24	20,122	-57.2		27	19.2	20	20,441	-63.0		27	13.3	24	20,421	-63.5		27	13.2	24	20,272	-59.3		27	19.4	19	20,660	-63.7		27	9.0				
50	24	21,534	-57.6		26	17.4	19	21,820	-61.5		27	11.8	23	21,797	-61.9		27	13.7	23	21,635	-59.1		27	15.4	18	21,826	-62.5		27	8.0				
0	24	23,357	-57.3		27	15.3	18	23,616	-58.9		28	10.9	23	23,591	-58.4		28	11.9	22	23,478	-57.7		27	11.2	17	23,616	-59.1		26	5.2				
500	24	24,511	-57.0		26	15.2	18	24,765	-57.0		27	15.2	23	24,743	-56.8		28	12.1	21	24,530	-58.0		27	12.0	19	24,756	-57.2		23	9.6				
400	24	25,924	-57.3		25	15.1	18	26,183	-54.7		27	14.9	23	26,165	-54.7		27	14.2	19	26,040	-56.4		27	11.3	12	26,184	-56.6		26	8.3				
300	24	27,754	-55.4		27	15.3	15	28,047	-50.4		27	20.5	21	28,031	-49.6		27	17.6	18	27,869	-54.6		27	14.5	10	28,049	-50.2							
10	8	30,377	-53.1			9	30,721	-44.7				7	30,784	-38.6						5	30,514	-44.7												

COLD BAY, AK 985 MB										DAYTON, OH 985 MB										DEL RIO, TX 982 MB										DENVER, CO 835 MB										DODGE CITY, KS 927 MB									
SFC	28	30	-2.1	-5.4	11	1-2	28	299	-11.0	-14.0	33	9-28	314	5-5	1-5	10	1-5	28	1011	-4.0	-8.1	12	+1	28	791	-8.1	-10.2	33	1-0																				
1000																																																	
950	28	338	-2.7	-6.6	09	4.7	28	574	-9.2	-12.4	31	2.3	28	585	6.2	1.3	14	2.3						28	1.019	-4.9	-8.6	35	2.0																				
900	28	765	-5.7	-8.1	10		28	992	-9.6	-14.7	39	2.8	28	1.027	5.2	-1.7	20	2.7						28	1.168	-3.1	-7.1	31	2.1																				
850	28	1211	-1.2	-1.2	10	4.1	28	1.423	-1.2	-16.2	29	5.3	28	1.495	-6.2	-1.3	34	3.2						28	1.149	-3.4	-10.3	30	4.6																				
800	28	1.680	-10.8	-1.7	10	3.9	28	1.901	-10.4	-18.2	38	7.1	28	1.991	5.2	9.9	28	6.2	28	1.948	-3.2	-10.3	31	1.8	28	1.949	-3.4	-10.3	30	4.6																			
750	28	2.174	-13.4	-20.6	09	3.0	28	2.926	-12.0	-20.2	27	9.0	28	2.515	2.5	-12.4	28	7.6	28	2.459	-3.1	-16.0	31	4.7	28	2.458	-4.5	-15.4	31	7.1																			
700	28	2.696	-16.4	-20.4	09	3.1	28	2.936	-14.1	-21.9	28	10.8	28	3.070	-8.5	-16.0	28	10.4	28	3.002	-6.0	-18.3	31	6.9	28	2.999	-7.0	-18.6	30	8.4																			
650	28	3.250	-19.6	-27.5	10	2.9	28	3.082	-16.7	-24.1	28	12.9	28	3.658	-4.2	-18.5	27	12.1	28	3.578	-10.1	-20.1	31	8.9	28	3.575	-10.0	-20.2	29	9.5																			
600	28	3.840	-23.4	-32.0	10	2.5	28	3.080	-19.6	-26.9	27	14.8	28	4.284	-8.4	-23.2	14	14.3	28	4.190	-14.4	-23.7	31	10.5	28	4.188	-13.4	-24.2	29	10.3																			
550	28	4.470	-27.2	-36.0	10	2.5	28	3.72	-22.9	-31.3	29	16.5	28	4.954	-11.2	-29.4	27	16.2	28	4.855	-17.4	-28.8	30	11.3	28	4.855	-17.4	-28.8	29	10.5																			
500	28	5.152	-32.1	-41.5	15	3.4	28	5.411	-27.9	-33.4	27	20.1	28	5.674	-17.0	-33.9	27	18.2	27	5.548	-23.5	-34.2	30	12.2	28	5.555	-23.5	-35.2	29	14.0																			
450	28	5.888	-37.3	-42.7	17	2.9	28	6.161	-32.6	-40.3	27	23.2	28	6.545	-23.1	-37.8	27	20.3	27	6.310	-28.8	-39.1	30	13.1	28	6.317	-27.9	-38.6	29	13.4																			
400	28	6.692	-42.9	-43.7	15	3.5	28	6.982	-38.1	-44.5	27	27.3	28	7.306	-29.6	-42.8	27	22.8	27	7.163	-34.9	-44.0	30	15.2	28	7.152	-34.5	-43.1	29	17.1																			
350	28	7.584	-48.0		16	5.9	28	7.892	-44.3		27	29.9	27	8.248	-36.3	-46.0	27	27.7	27	8.064	-42.1	-48.2	30	17.2	28	8.074	-43.6	-47.1	29	19.4																			
300	28	8.593	-52.9		17	7.0	28	8.907	-50.6		26	32.0	27	9.300	-42.6	-47.7	27	34.1	27	9.087	-50.0		29	18.9	27	9.097	-50.0		29	22.1																			
250	28	9.757	-57.2		17	7.5	28	10.085	-54.1		26	34.3	27	10.323	-46.3	-51.9	27	36.0	27	10.258	-56.9		29	21.2	27	10.273	-55.3		29	25.2																			
200	28	11.200	-61.2		18	7.3	28	11.523	-51.7		26	34.3	27	11.973	-50.0		27	44.4	27	11.685	-57.1		29	22.8	28	11.696	-56.8		28	30.3																			
175	28	12.671	-64.8		19	7.0	28	12.930	-51.9		26	34.3	27	12.829	-56.0		27	43.4	26	12.518	-55.9		28	24.0	27	12.547	-54.9		28	30.6																			
150	28	13.081	-69.5		20	9.4	28	13.387	-53.0		26	34.0	27	13.801	-59.5		27	41.4	26	13.499	-56.1		28	23.5	27	13.531	-55.4		28	28.7																			
125	27	14.274	-69.4		21	9.1	28	14.556	-55.5		26	29.2	27	14.930	-63.9		27	37.8	25	14.659	-57.8		28	22.7	27	14.688	-57.7		28	29.6																			
100	27	15.734	-69.8		22	9.4	28	15.970	-58.1		26	28.2	26	16.255	-67.9		27	29.3	25	16.051	-59.8		28	17.8	26	16.090	-60.4		28	22.8																			
75	27	17.214	-69.9		22	8.8	28	17.370	-59.8		26	23.0	25	17.023	-69.5		27	23.7	24	17.444	-61.6		28	15.2	25	17.772	-61.8		28	13.0																			
50	27	18.086	-50.7		22	7.8	28	18.204	-60.2		26	20.4	25	18.422	-68.3		27	17.4	24	18.270	-61.9		28	12.8	25	18.296	-61.8		28	14.4																			
25	27	19.092	-50.8		22	6.6	27	19.162	-60.5		26	18.0	22	19.343	-67.4		26	14.3	24	19.224	-62.2		29	10.7	25	19.252	-62.5		28	16.8																			
0	20	20.276	-52.0		22	6.3	26	20.297	-60.8		26	10.0	20	20.439	-65.9		27	11.3	23	20.348	-61.8		29	9.9	25	20.376	-62.0		28	11.1																			
20	23	21.720	-52.4		25	5.4	25	21.887	-59.9		27	13.9	19	21.803	-62.2		26	8.1	21	21.735	-61.4		29	7.6	23	21.756	-61.6		28	9.4																			
20	23	23.576	-53.4		25	4.0	20	23.597	-58.5		27	10.9	17	23.504	-59.3		27	8.1	11	23.516	-59.8		28	7.4	27	23.542	-59.6		28	8.4																			
20	23	24.774	-53.4		19	4.3	19	24.836	-58.4		27	10.2	19	24.742	-58.4		27	12	12	24.733	-58.6		28	5.3	20	24.758	-58.6		28	8.4																			
20	26	26.173	-53.6		27	5.1	16	26.059	-56.3		26	13.2	19	26.162	-56.5		28	10.8	11	26.250	-57.8		28	7.1	26	26.292	-57.7		27	8.9																			
15	14	27.997	-52.7		30	7.0	10	27.902	-52.7			14	28.025	-50.6		27	16.4	9		27.859	-56.3				18	27.922	-55.0		28	12.0																			
6	6	30.735	-49.4									6	30.707	-47.2											8	30.744	-46.5																						

EL PASO, TX										ELY, NV										EMPALME, MEXICO										FAIRBANKS, AK										FLINT, MI									
881 MB										807 MB										1014 MB										991 MB										992 MB									
SPC	28	1	193	4.3	-4.1	24	1.0	28	1	908	-4.7	-10.3	20	3.1	28	12	13.4	6.9	32	2.2	27	135	-17.1	-21.0	03	.8	25	236	-12.0	-14.7	24	1.8																	
1000																28	127	16.3	7.0	33	2.5	173	-6.7	-11.2																									
950																28	564	16.4	1.35	3.4	27	470	-7.9	-15.3	12	3.3	25	569	-10.0	-11.0	31	4.1																	
900																28	1022	13.9	-1.0	3.2	27	880	-8.4	-16.1	14	5.0	25	984	-12.0	-16.3	31	5.2																	
850	28	1	889	6.4	-5.8	26	2.7								28	1591	10.7	-5.7	29	3.3	27	1323	-8.1	-17.1	16	4.5	25	1621	-12.4	-19.4	30	6.3																	
800	28	1	988	3.8	-8.2	27	3.2	2	901	-2.7	-7.8	21	2.3	28	2005	8.0	-9.6	28	3.9	27	1794	-8.6	-18.6	19	4.5	25	1683	-13.7	-21.2	30	8.2																		
750	28	2	505	5.5	-11.1	27	7.0	28	2	853	-0.0	-9.4	28	2	28	2533	5.2	-8.8	5.2	28	2	1794	-10.2	-19.6	20	5.8	25	2375	-13.2	-21.2	29	10.4																	
700	28	3	055	-2.8	-15.1	27	7.8	28	3	029	-6.3	-12.8	27	3.4	28	3092	1.8	-15.5	26	6.8	27	2822	-2.2	-22.6	20	6.4	25	2889	-13.5	-25.9	29	11.9																	
650	28	3	639	-6.1	-19.5	27	9.6	28	3	066	-9.0	-17.0	29	6.1	28	3686	-1.8	-18.5	28	8.2	27	3381	-17.4	-28.4	20	6.5	25	3446	-15.4	-26.7	29	12.4																	
600	28	4	261	-1.0	-22.6	27	11.0	28	4	221	-1.7	-21.0	28	7.5	28	4318	-5.8	-21.9	28	10.3	27	3976	-21.4	-30.8	19	6.4	25	4037	-22.4	-32.4	29	14.0																	
550	28	6	927	-14.3	-26.6	27	12.4	28	6	980	-11.0	-25.3	28	9.2	28	4994	-10.5	-25.4	29	14.0	27	4612	-26.0	-35.4	20	6.7	25	4672	-26.0	-35.6	29	16.3																	
500	28	5	504	-10.2	-37.7	27	14.0	28	5	568	-22.2	-30.7	28	10.3	28	6308	-13.3	-34.6	28	15.0	27	5294	-31.3	-39.7	20	7.7	25	5356	-30.0	-40.9	29	18.7																	
450	28	6	617	-21.9	-47.7	27	16.3	28	6	635	-30.5	-40.5	29	11.7	27	7349	-12.7	-39.5	28	21.7	27	6332	-36.0	-43.7	20	8.6	25	6707	-35.3	-44.5	28	20.8																	
400	28	7	263	-31.4	-45.6	27	19.2	28	7	189	-34.3	-40.9	29	13.9	27	7366	-12.7	-39.5	28	21.7	27	6332	-36.0	-43.7	20	9.6	25	6809	-34.7	-44.5	28	21.8																	
350	28	8	197	-38.3	-45.9	27	21.9	28	8	111	-41.7	-40.5	29	15.3	27	8317	-34.3	-43.4	28	25.6	26	7623	-49.3		20	11.6	24	7800	-40.6		28	27.2																	
300	28	9	239	-45.2	-47.9	27	26.1	28	9	136	-49.7		29	16.4	27	9376	-41.6	-44.5	28	30.5	25	8714	-56.4		20	11.7	24	8812	-52.3		28	30.3																	
250	28	10	441	-50.5		28	31.4	28	10	311	-56.0		29	19.4	27	10394	-47.8		27	40.3	25	9862	-59.0		20	12.0	24	9986	-56.8		28	32.5																	
200	28	11	880	-53.4		28	35.4	28	11	400	-58.2		29	22.5	27	12055	-52.4		27	43.0	25	11269	-56.3		20	10.7	24	11418	-52.3		28	30.0																	
150	28	12	743	-55.3		27	36.3	28	12	568	-56.8		29	22.5	27	12493	-55.3		27	42.5	25	12122	-54.5		22	9.9	24	12288	-55.2		28	30.3																	
100	28	13	720	-58.1		27	37.2	28	13	541	-56.8		28	22.9	26	13855	-59.2		27	40.2	25	13110	-54.1		22	9.6	24	13276	-59.1		28	30.8																	
125	28	14	839	-61.7		27	31.8	28	14	693	-58.4		28	20.6	26	15015	-64.2		27	34.5	25	14279	-54.6		22	9.9	23	14451	-56.1		28	26.8																	
100	28	16	223	-55.2		26	26.6	27	16	084	-60.7		28	16.7	25	16363	-67.8		27	27.7	24	15724	-54.7		23	11.3	23	15874	-50.5		28	23.6																	
80	28	17	576	-66.9		27	20.6	26	17	470	-62.6		28	13.0	23	17694	-69.9		27	20.3	22	17190	-54.4		21	10.1	21	17226	-58.3		28	21.9																	
60	28	19	392	-60.8		26	28.4	27	19	270	-60.8		28	12.2	22	18700	-69.1		27	16.3	21	18070	-54.4		22	10.4	21	18125	-59.2		28	19.9																	
40	28	19	319	-65.9		28	12.6	25	19	246	-63.2		28	9.0	20	19397	-67.5		27	12.2	20	19081	-56.4		22	8.2	20	19104	-59.2		28	17.6																	
20	28	20	430	-66.8		28	8.4	24	20	363	-62.7		28	8.0	20	20301	-65.6		26	8.0	20	20301	-65.6		24	8.2	19	20301	-65.6		28	13.9																	
0	28	21	796	-62.6		26	6.2	22	21	735	-61.8		28	6.7	17	21866	-62.9		26	6.1	20	21668	-55.9		24	8.2	15	21629	-59.9		29	13.5																	
0	28	23	583	-59.4		27	6.0	20	23	514	-60.7		30	5.4	17	23657	-58.9		27	4.1	18	23832	-54.6		28	6.6	12	23435	-59.3		30	11.5																	
25	17	24	733	-58.0		27	7.4	16	24	671	-59.5		29	5.2	16	24809	-57.1		27	5.8	16	24763	-54.8		29	7.2	10	24586	-59.6		28	17.6																	
25	17	26	010	-55.2		24	7.2	16	26	072	-58.7		30	6.0	16	26232	-53.9		27	9.7	15	26257	-53.9		26	5.3	10	25909	-57.8																				
15	17	28	022	-51.8		27	18.5	12	27	922	-54.7		30	7.0	13	28093	-50.1		28	12.8	10	28108	-53.5																										
10										230	467	-50.3																																					



# RAWINSONDE DATA

Average monthly values

FEBRUARY 1976

GLASGOW, MT 938 MB												GRAND JUNCTION, CO 852 MB												GREAT FALLS, MT 888 MB												GREEN BAY, WI 992 MB												SHEPHERD, NC 980 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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No. of observations												No. of observations												No. of observations												No. of observations												No. of observations																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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SPC 28	696	-15.1	-17.9	10	2.9	28	17472	-1.2	-4.7	12	1.1	28	17118	-11.0	-13.7	24	2.1	28	210	-13.8	-15.4	30	1.9	24	275	-4.3	-8.6	35	1.7	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30	2.8	28	248	-14.0	-16.1	30



# RAWINSONDE DATA

Average monthly values

FEBRUARY 1978

KING SALMON, AK 993 MB										KOKOP, CARLINE IS. 1009 MB										KOTZESBJE, AK 1008 MB										LAKE CHARLES, LA 1020 MB										LANDER, WY 820 MB									
* Resultant Wind										* Resultant Wind										* Resultant Wind										* Resultant Wind										* Resultant Wind									
Standard pressure surface mb	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.													
SFC	28	15	-6.4	-9.3	07	4.3	28	30	-26.2	-23.7	05	3.2	28	5	-18.2	-22.1	03	1.5	28	5	3.9	-7	02	2.6	28	10697	-8.7	-12.3	24	1.0																			
1000	28	15	-5.3	-10.9			28	109	-25.1	-22.4	06	4.2	28	85	-13.8	-18.2	09	2.8	28	103	4.1	-3	33	1.5	28	24487	-5.3	-13.5	32	4.3																			
950	28	351	-6.5	-8.6	08	7.5	28	559	-27.2	-20.4	06	6.1	28	454	-11.7	-17.1	12	4.6	28	581	4.9	-2.8	33	1.5	28	24487	-5.3	-13.5	32	4.3																			
900	28	786	-6.1	-10.1	09	7.7	28	1029	-14.8	-16.1	07	8.0	28	869	-11.1	-17.9	13	4.0	28	1024	5.4	-4.4	29	3.5	28	24487	-5.3	-13.5	32	4.3																			
850	28	1232	-7.9	-12.0	11	8.3	28	1522	-16.6	-11.9	07	7.4	28	1390	-11.9	-19.0	14	3.7	28	1491	5.2	-6.1	28	5.5	28	24487	-5.3	-13.5	32	4.3																			
800	28	1702	-10.0	-14.1	11	8.3	28	2036	-16.8	-8.3	08	6.1	28	1770	-13.6	-20.8	15	3.9	28	1985	3.4	-11.1	28	7.0	28	19499	-5.0	-10.6	31	1.7																			
750	28	2197	-12.7	-17.3	12	9.2	28	2580	-12.3	-3.7	08	5.9	28	2259	-16.1	-24.4	16	4.3	28	2506	-9	-13.6	28	9.0	28	24487	-5.3	-13.5	32	4.3																			
700	28	2721	-15.8	-21.8	13	9.4	28	3157	-9.2	-1.4	08	6.3	28	2775	-19.9	-28.1	16	4.7	28	3057	-9	-16.5	27	12.1	28	24487	-5.3	-13.5	32	4.3																			
650	28	3277	-18.7	-25.4	13	8.6	28	3764	-6.2	-4.7	08	7.3	28	3322	-22.8	-32.1	17	5.0	28	3643	-4.9	-20.1	27	14.5	28	24487	-5.3	-13.5	32	4.3																			
600	28	3869	-22.5	-29.2	13	8.5	28	4242	-2.7	-7.4	08	7.5	28	3905	-26.5	-35.5	18	4.9	28	4268	-8.6	-23.4	27	17.3	28	24487	-5.3	-13.5	32	4.3																			
550	28	4533	-26.5	-33.1	14	8.7	28	5121	-1.1	-11.8	08	8.6	28	4529	-30.6	-38.1	18	6.4	28	4937	-12.9	-21.3	27	19.5	28	24487	-5.3	-13.5	32	4.3																			
500	28	5185	-31.5	-38.7	14	8.4	28	5874	-5.4	-17.2	09	8.9	28	5220	-34.9	-41.6	19	8.1	28	5657	-14.2	-32.7	27	21.3	28	24487	-5.3	-13.5	32	4.3																			
450	28	5922	-37.0	-41.9	15	9.7	28	6696	-9.7	-23.4	08	9.5	28	6229	-39.6	-44.4	19	9.7	28	6435	-23.2	-36.4	26	24.2	28	24487	-5.3	-13.5	32	4.3																			
400	28	6726	-43.3	-45.6	15	11.1	28	7504	-15.2	-28.3	08	9.0	28	6721	-45.3					28	7285	-29.9	-42.1	26	28.0	28	24487	-5.3	-13.5	32	4.3																		
350	28	7516	-49.3				28	8359	-22.0	-34.8	08	7.3	28	7603	-51.5					28	8227	-36.2	-46.1	26	33.5	28	24487	-5.3	-13.5	32	4.3																		
300	28	8313	-53.7				28	9106	-30.8	-42.3	10	6.2	28	8387	-57.3					28	9279	-42.7	-46.9	26	40.9	28	24487	-5.3	-13.5	32	4.3																		
250	28	9182	-54.3				28	10073	-41.2		13	6.0	28	9735	-58.2					28	10493	-48.7		26	42.0	28	24487	-5.3	-13.5	32	4.3																		
200	28	11218	-52.2				28	12448	-53.7		14	9.3	28	11147	-55.1					28	11949	-52.0		27	46.3	28	24487	-5.3	-13.5	32	4.3																		
175	28	12084	-51.5				28	13293	-60.4		14	12.0	28	12001	-64.3					28	12869	-54.6		27	44.3	28	24487	-5.3	-13.5	32	4.3																		
150	28	13088	-51.8				28	14377	-67.9		13	11.1	28	13011	-67.9					28	13787	-58.3		27	41.0	28	24487	-5.3	-13.5	32	4.3																		
125	28	14263	-51.8				28	15513	-75.3		12	8.3	28	14171	-74.6					28	14923	-62.6		27	37.1	28	24487	-5.3	-13.5	32	4.3																		
100	28	15706	-52.3				28	16854	-81.3		10	4.8	28	15950	-55.2					28	16784	-66.8		27	29.5	28	24487	-5.3	-13.5	32	4.3																		
80	28	17147	-53.2				28	18333	-81.1		07	2.8	28	17046	-55.8					28	17619	-68.7		27	22.6	28	24487	-5.3	-13.5	32	4.3																		
60	28	18005	-54.4				28	18959	-76.7		08	2.4	28	18090	-59.7					28	18741	-67.7		27	17.8	28	24487	-5.3	-13.5	32	4.3																		
40	28	19000	-54.5				28	19790	-71.7		09	2.9	28	19092	-59.3					28	19750	-67.1		27	15.8	28	24487	-5.3	-13.5	32	4.3																		
20	28	20161	-55.1				28	20975	-86.5		30	4.6	28	20085	-59.8					28	20758	-64.8		28	10.0	28	24487	-5.3	-13.5	32	4.3																		
10	28	21192	-55.2				28	21966	-90.2		27	8.1	28	21392	-55.0					28	21832	-61.4		28	9.2	28	24487	-5.3	-13.5	32	4.3																		
7	28	23156	-54.5				28	23784	-55.5		27	13.2	28	23470	-54.0					28	23931	-58.2		28	10.8	28	24487	-5.3	-13.5	32	4.3																		
5	28	24715	-54.0				28	24953	-53.3		27	14.7	28	24040	-54.1					28	24783	-56.4		27	12.7	28	24487	-5.3	-13.5	32	4.3																		
3	28	26058	-54.0				28	26397	-51.9		27	16.0	28	26130	-52.4					28	26715	-53.8		28	10.1	28	24487	-5.3	-13.5	32	4.3																		
1	28	28018	-53.3				28	28777	-44.2		28	14.8	28	27949	-51.8					28	28575	-41.9		27	18.1	28	24487	-5.3	-13.5	32	4.3																		
7	28	30079	-44.3				28	30799	-44.3											28	30775	-41.9																											

* L'HEU KAUAI, HI 1013 MB										* LITTLE ROCK, AR 1001 MB										* LONGVIEW, TX 1007 MB										* MCGRATH, AK 991 MB										* MAJURO, MARSHALL IS. 1011 MB									
* Resultant Wind										* Resultant Wind										* Resultant Wind										* Resultant Wind										* Resultant Wind									
Standard pressure surface mb	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.	No. of observations	Dynam height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s.													
SFC	28	36	19.8	16.4	34	9	28	79	-2.7	-7.0	35	1.9	28	124	1.2	-2.6	03	8	28	103	-15.3	-19.8	36	8	28	3	28.6	23.5	07	6.0																			
1000	28	147	20.7	15.7	03	1.4	28	10	20.9	-6.4	-8.5	02	2.7	28	190	1.6	-3.5	04	1.4	7	140	-13.7	-17.5			28	102	27.1	22.4	07	7.3																		
950	28	591	17.6	13.6	04	1.0	28	586	-2.9	-9.1	30	2.4	28	591	1.6	-4.3	17	3.2	28	423	-10.7	-15.6	08	4.4	28	555	23.4	20.7	07	8.0																			
900	28	1005	16.6	7.6	12	1.0	28	1018	-1.1	-9.3	29	3.1	28	1023	-1.5	-3.7	27	3.8	28	1081	-14.5	-18.5	11	4.4	28	1093	23.3	17.2	07	8.0																			
850	28	1513	12.8	-6.3	31	1.6	28	1670	-2.2	-9.8	30	5.3	28	1688	2.4	-8.1	29	6.4	28	1287	-7.7	-16.12	44	4.8	28	1519	17.3	12.9	08	7.4																			
800	28	2041	10.9	-4.7	31	3.0	28	1952	-8.8	-11.6	30	8.2	28	1977	1.1	-11.4	28	9.1	28	1757	-10.2	-19.2	14	4.3	28	2036	16.3	5.1	09	5.9																			
750	28	2577	9.2	-10.5	30	4.7	28	2662	-6.7	-13.2	29	10.7	28	2695	-9	-15.0	28	10.8	28	2252	-12.7	-21.2	14	4.3	28	2585	14.7	-1.1	10	5.7																			
700	28	3146	6.7	-13.3	30	7.2	28	3007	-7.0	-16.6	29	12.8	28	3042	-3.8	-18.6	28	12.9	28	2775	-15.4	-23.5	15	5.3	28	3165	12.0	-5.4	10	6.4																			
650	28	3751	5.5	-16.3	29	9.4	28	3678	-5.6	-21.6	28	14.5	28	3624	-7.0	-22.8	28	14.2	28	331	-19.0	-26.9	16	6.8	28	3782	8.3	-7.2	10	6.4																			
600	28	4396	-3	-19.0	29	11.1	28	4295	-2.9	-24.9	29	17.3	28	4240	-10.8	-26.7	28	15.6	28	3922	-22.8	-30.5	16	6.8	28	4359	-4.1	-9.9	10	6.4																			
550	28	5089	-3.5	-23.9	29	14.7	28	4951	-17.0	-30.8	29	18.6	28	4907	-13.3	-30.7	27	17.3	28	4555	-27.1	-34.6	16	10.8	28	5144	-9	-16.1	09	11.8																			
500	28	5835	-8.5	-27.8	30	17.5	28	5559	-22.1	-35.4	28	19.9	28	5619	-27.0	-34.1	27	19.4	28	5235	-31.9	-39.2	16	11.8	28	5904	-3.7	-20.4	09	13.9																			
450	28	6646	-13.1	-31.5	30	21.1	28	6325	-27.6	-39.2	28	21.7	28	6390	-26.1	-39.6	27	22.5	28	5971	-37.1	-41.4	16	12.9	28	6729	-8.2	-24.8	09	14.9																			
400	28	7532	-19.2	-36.3	30	23.9	28	7162	-33.8	-45.3	28	25.0	28	7232	-32.3	-45.8	27	25.6	28	6775	-43.1	-43.7	17	14.2	28	7633	-14.0	-29.1	09	12.7																			
350	28	8515	-25.7	-42.1	30	27.4	28	8254	-40.5	-47.5	28	28.5	28	8328	-38.4	-47.9	26	29.																															

* L'HELE KAUAI, HI 1013 MB										* LITTLE ROCK, AR 1001 MB										* LONGVIEW, TX 1007 MB										* MCGRATH, AK 991 MB										* MAJURO, MARSHALL IS. 1011 MB									
* Resultant Wind										* Resultant Wind										* Resultant Wind										* Resultant Wind										* Resultant Wind									
SFC	28	36	19.8	10.4	34	9	28	79	-2.7	-7.0	35	1.9	28	124	1.2	-2.6	03	.8	28	103	-15.1	-19.8	36	.8	28	3	28.6	23.3	07	8.0																			
1000	28	147	20.1	13.7	03	1.0	28	209	-4.4	-9.5	02	2.7	28	190	0	-3.9	04	1.4	28	423	-13.7	-17.5	36	.8	28	102	27.1	22.4	07	7.3																			
950	28	591	15.6	13.6	02	1.4	28	586	-4.9	-9.1	30	3.2	28	591	0	-4.3	17	2.2	28	423	-13.7	-17.5	36	.8	28	955	23.1	20.7	07	9.0																			
900	28	1052	14.6	7.6	02	1.3	28	1015	-2.3	-9.9	30	3.2	28	1027	1.6	-3.9	17	3.0	28	842	-7.2	-15.6	11	4.4	28	1026	20.9	17.2	07	8.7																			
850	28	1533	12.8	6.3	3	1.6	28	1470	-2.2	-9.8	30	5.3	28	1488	1.8	-4.1	20	6.4	28	1287	-7.7	-16.8	12	4.8	28	1519	17.3	12.9	08	7.4																			
800	28	2041	10.9	4.7	31	3	28	1952	-2.8	-11.6	30	5.2	28	1977	1.1	-11.4	20	9.1	28	1797	-10.2	-19.2	14	4.3	28	2036	16.3	9.1	09	5.9																			
750	28	2577	9.2	-10.5	30	4.7	28	2462	-4.7	-13.2	29	10.7	28	2492	-4.9	-15.0	28	10.8	28	2252	-12.7	-21.2	14	4.3	28	2585	14.7	10.1	10	5.7																			
700	28	3146	6.7	-13.3	29	7.2	28	2907	-7.0	-18.5	29	12.8	28	3042	-3.8	-18.6	28	12.9	28	2735	-15.2	-23.9	16	4.3	28	3163	12.0	8.4	10	5.7																			
650	28	3751	5.5	-16.3	29	9.4	28	3677	-9.8	-21.8	29	14.2	28	3824	-10.0	-22.8	28	14.9	28	3331	-19.0	-26.9	16	4.3	28	3842	10.4	6.4	10	5.7																			
600	28	4396	3.1	-19.0	29	11.6	28	4192	-12.7	-26.9	29	17.1	28	4244	-10.8	-26.7	28	15.6	28	3922	-22.8	-30.5	16	8.5	28	4439	4.8	-10.9	09	10.9																			
550	28	5089	-3.5	-23.3	29	14.7	28	4981	-17.0	-30.8	29	18.6	28	4907	-15.3	-30.3	27	17.3	28	4555	-27.1	-34.6	16	10.8	28	5144	9.1	-16.1	09	11.8																			
500	28	5835	-8.5	-27.8	30	17.5	28	5559	-22.1	-35.4	28	19.9	28	5619	-20.7	-34.1	27	19.4	28	5235	-31.9	-39.2	16	11.8	28	5904	2.7	-20.4	09	13.5																			
450	28	6646	-13.1	-31.5	30	21.1	28	6325	-27.9	-39.2	28	21.7	28	6300	-26.1	-39.6	27	22.5	28	5971	-37.1	-44.4	16	12.9	28	6729	6.2	-24.8	09	14.9																			
400	28	7532	-19.2	-36.3	30	23.9	28	7162	-33.8	-45.3	28	23.0	28	7232	-32.3	-45.8	27	25.6	28	6735	-43.1	-43.7	17	14.2	28	7633	-14.0	-29.1	09	12.7																			
350	28	8525	-25.7	-42.6	30	27.4	28	8080	-40.4	-47.5	28	26.5	28	8146	-38.3	-47.9	27	28.2	28	7365	-49.2	-49.2	18	13.4	28	8638	1.9	-35.9	09	15.0																			
300	28	9611	-33.2	-47.3	30	29.8	28	9122	-49.0	-50.7	27	32.3	28	9205	-45.0	-48.6	26	35.7	28	8658	-55.7	8	13.8	28	9799	-28.7	-42.5	10	16.4																				
250	27	10871	-40.8	-53.7	29	32.8	28	10314	-52.3	27	38.4	28	10409	-49.7	27	42.7	28	9812	-57.1	18	12.0	28	11036	-39.2	27	10.7	11	7.9																					
200	27	12350	-51.4	29	36.4	28	11757	-55.2	27	41.6	28	11980	-52.1	27	44.9	28	11233	-54.3	19	10.5	28	12526	-51.5	12	8.1	11	9.2																						
175	27	13211	-57.9	29	39.0	27	12216	-53.8	27	41.2	28	12721	-54.0	27	42.9	28	12792	-53.1	20	10.3	28	13379	-56.4	12	8.1	11	9.2																						
150	27	14168	-64.6	29	31.0	27	13602	-58.2	27	38.9	28	13704	-57.0	27	41.1	28	13586	-55.8	20	9.8	28	14330	-68.6	12	8.1	11	9.2																						
125	27	15251	-71.4	28	28.0	27	14828	-67.4	27	34.8	27	14984	-61.4	27	35.2	28	14725	-59.3	21	9.5	28	15523	-80.8	11	10.0	11	9.2																						
100	28	16558	-77.6	28	21.9	27	16140	-62.6	27	27.8	28	16219	-60.5	27	32.0	28	15697	-54.2	22	9.0	28	16679	-83.0	10	13.5	11	9.2																						
75	27	17826	-79.1	28	13.2	27	17511	-66.3	27	22.6	28	17576	-66.1	27	22.3	27	17131	-59.2	24	9.3	28	17925	-80.9	09	9.9	11	9.2																						
50	27	18589	-77.4	28	9.5	27	18238	-66.2	27	19.0	28	18387	-65.7	27	19.7	27	17983	-55.4	24	9.7	27	18689	-75.6	08	9.6	11	9.2																						
25	27	19642	-73.1	28	5.3	27	19273	-66.8	28	15.3	25	19327	-65.5	27	15.0	25	18989	-55.8	25	9.4	27	19591	-71.3	11	9.2	11	9.2																						
0	28	20555	-68.3	27	4.4	27	20392	-63.0	28	12.0	25	20499	-63.5	28	10.6	22	20223	-54.8	25	8.0	27	20687	-64.5	27	19.4	11	9.2																						
0	28	21920	-63.2	27	4.2	27	21758	-63.2	28	10.8	27	21849	-61.2	27	10.4	27	21411	-54.1	25	8.0	27	21911	-67.1	27	11.1	11	9.2																						
0	28	23778	-58.5	27	4.1	26	23560	-59.7	28	9.8	23	23300	-59.2	28	8.6	21	23253	-54.2	25	8.0	25	33886	-83.3	27	17.2	11	9.2																						
0	28	24782	-55.6	29	5.0	26	24670	-56.1	28	9.9	23	24747	-57.5	28	9.8	21	24714	-54.4	29	8.6	25	25053	-93.8	27	19.4	11	9.2																						
0	28	26029	-52.6	30	4.9	24	26117	-55.9	28	12.2	22	26101	-55.2	28	11.7	21	26145	-54.0	29	4.0	24	26499	-50.5	27	20.5	11	9.2																						
0	28	28176	-47.8	28	7.9	21	27755	-52.4	27	15.7	21	28018	-50.3	27	19.1	18	28055	-52.0	20	5.0	28	28346	-48.2	27	19.0	11	9.2																						
0	28	30370	-40.8	25	14.5	17	30332	-43.4	27	27.2	14	30736	-40.1	27	29.2	6	30524	-45.7	11	31.076	-42.3																												



## A

1



## Average monthly values

FEBRUARY 1978

24



## Average monthly values

FEBRUARY 1978

21

# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

FEBRUARY 1978

ALBUQUERQUE, NM										BLUE HILL OBSERVATORY, MA									
Air mass										Air mass									
1.49	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19		4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89	
1-----	.98	1.08	1.20	1.35	----	1.25	1.06	1.12	1.02										
2-----	1.07	1.18	1.27	1.44	1.48	1.41	1.24	1.12	1.03										
3-----	1.03	1.13	1.25	1.40	1.46	1.39	1.27	1.11	1.03										
6-----	-----	-----	-----	-----	-----	-----	-----	-----	-----										
8-----	-----	-----	-----	1.44	-----	-----	1.23	-----	-----										
10-----	-----	-----	-----	-----	1.50	1.39	1.26	1.14	-----										
12-----	1.00	1.11	-----	1.17	1.35	1.29	-----	-----	.91										
13-----	-----	-----	-----	-----	-----	-----	-----	-----	-----										
18-----	1.04	1.15	1.26	1.40	-----	1.39	1.27	1.15	1.04										
19-----	-----	-----	-----	-----	-----	-----	-----	1.17	1.06										
20-----	1.03	1.14	1.21	1.37	1.43	1.36	1.13	-----	-----										
21-----	1.06	1.17	1.25	1.39	1.49	1.39	1.25	1.14	1.03										
22-----	1.03	1.14	1.24	1.39	1.49	1.39	1.19	1.08	.95										
23-----	1.05	1.14	1.24	1.37	1.49	1.38	1.20	1.07	.97										
24-----	1.06	1.16	1.26	1.38	1.48	1.41	1.27	1.16	1.03										
25-----	1.05	1.12	1.24	1.38	1.47	1.33	1.20	1.09	1.00										
Aver-	1.04	1.11	1.24	1.39	1.48	1.36	1.21	1.12	1.00										
ages																			

MADISON, WI										MAUNA LOA OBSERVATORY, HI									
Air mass										Air mass									
4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69		3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34	
17-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.32	1.38	1.47	1.58	-----	-----	-----	-----	-----	-----
21-----	S .88	S1.00	S1.12	S1.27	S1.35	S1.33	S1.12	S .97	S .88	1.27	1.34	1.42	1.53	1.65	1.51	1.40	1.32	1.24	1.28
Aver-	.88	1.00	1.12	1.26	1.33	1.29	1.09	.98	.88	1.27	1.35	1.42	1.53	1.64	1.52	1.41	1.34	1.28	1.25
ages										1.29	1.38	1.46	1.55	1.64	1.51	1.41	1.33	1.25	1.24
										1.32	1.38	1.49	1.58	1.67	1.53	1.41	1.30	1.24	1.27
										1.32	1.39	1.47	1.58	1.66	1.55	1.44	1.34	1.27	1.27
										1.30	1.38	1.46	1.57	1.66	-----	-----	-----	-----	-----
										1.28	1.35	1.44	1.55	1.65	-----	-----	-----	-----	-----
										1.29	1.37	1.46	1.57	1.66	-----	-----	-----	-----	-----
										1.33	1.39	1.46	1.56	1.64	-----	-----	-----	-----	-----
										1.35	1.40	1.52	1.57	1.66	-----	-----	-----	-----	-----
										1.35	1.40	1.48	1.57	-----	-----	-----	-----	-----	-----
										1.33	1.39	1.46	1.55	-----	-----	-----	-----	-----	-----
										1.28	1.34	1.43	1.55	-----	-----	-----	-----	-----	-----
										1.25	1.33	1.42	1.53	1.66	-----	-----	-----	-----	-----
										1.28	1.35	1.44	1.54	-----	-----	-----	-----	-----	-----
										1.29	1.36	1.44	1.56	-----	-----	-----	-----	-----	-----
										1.26	1.33	1.41	1.53	1.61	-----	-----	-----	-----	-----
										-----	-----	-----	-----	1.62	1.50	1.39	1.31	1.22	-----
										1.29	1.36	1.45	1.56	1.63	-----	-----	-----	-----	-----
										1.26	1.35	1.43	1.54	1.64	-----	-----	-----	-----	-----
										1.24	1.33	1.42	1.54	1.64	-----	-----	-----	-----	-----
										1.21	1.29	1.38	1.49	1.60	1.46	1.35	1.25	1.18	-----
										1.27	1.33	1.41	1.51	1.63	1.51	1.37	1.27	1.17	-----
										1.31	1.36	1.42	1.53	1.64	1.50	1.36	1.26	1.16	-----
										-----	-----	-----	-----	1.64	1.52	1.42	1.33	1.26	-----
										1.25	1.32	1.41	1.52	1.63	1.51	1.40	1.32	1.25	-----
Aver-										1.29	1.36	1.44	1.55	1.64	1.51	1.40	1.31	1.22	-----
ages																			

TUCSON, AZ										NO DATA RECEIVED									
Air mass										Air mass									
4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64		Air mass									
1-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Air mass									
2-----	H .64	H .75	-----	H1.17	H1.27	H1.25	H .97	H .82	H .75	Air mass									
3-----	.85	.94	1.06	1.27	1.40	1.32	1.14	1.03	.92	Air mass									
4-----	.91	-----	-----	-----	-----	-----	-----	-----	-----	Air mass									
5-----	.84	.96	-----	-----	1.41	1.31	-----	-----	-----	Air mass									
6-----	.87	1.00	1.11	1.23	1.34	-----	-----	-----	-----	Air mass									
7-----	-----	1.03	1.16	-----	1.36	1.30	1.17	1.06	.98	Air mass									
8-----	-----	1.09	-----	-----	-----	1.34	1.22	1.11	1.03	Air mass									
9-----	1.05	1.14	1.24	1.31	-----	-----	-----	-----	-----	Air mass									
11-----	-----	-----	-----	-----	1.33	1.26	1.11	1.08	.98	Air mass									
12-----	-----	-----	-----	-----	1.23	-----	-----	-----	-----	Air mass									
14-----	-----	-----	1.04	1.27	1.36	-----	-----	-----	-----	Air mass									
15-----	-----	-----	1.03	-----	-----	-----	-----	-----	-----	Air mass									
16-----	-----	-----	-----	-----	1.48	-----	-----	-----	-----	Air mass									
17-----	-----	-----	-----	-----	1.40	1.34	1.22	1.10	1.00	Air mass									
18-----	.99	1.09	1.21	1.39	1.47	1.41	1.26	1.16	1.06	Air mass									
19-----	1.00	1.09	1.22	1.38	1.49	1.39	1.24	1.08	1.01	Air mass									
20-----	1.00	1.08	1.22	1.36	1.46	1.34	1.21	1.10	1.01	Air mass									
21-----	.96	1.06	1.18	1.32	1.47	1.32	1.18	1.06	.93	Air mass									
22-----	.97	1.08	1.24	1.39	1.50	1.35	-----	-----	-----	Air mass									
23-----	.97	1.06	1.17	1.32	1.43	1.29	-----	1.04	.94	Air mass									
24-----	.91	1.03	1.13	1.28	1.41	-----	1.12	1.03	-----	Air mass									
25-----	.97	1.06	1.18	1.32	1.46	-----	1.13	1.04	.96	Air mass									
27-----	-----	1.04	1.16	-----	-----	-----	-----	-----	-----	Air mass									
Aver-	.94	1.03	1.16	1.31	1.41	1.32	1.16	1.05	.96	Air mass									
ages										Air mass									



# NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

FEBRUARY 1978

Date . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . .	-55	-12	-10	-7	-27	-18	7	-51	-53	-20	-41	-41	-29	-56	-30	-66	-26	-35	-66	-19	-64	-37	-55	-89	-98	-86	-42	-68				-15

## SOLAR ULTRA-VIOLET RADIATION DATA

Daily totals and monthly average ( < 3900 Å ) at Ames, Iowa.

Date . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . .																																

NO DATA RECEIVED

# REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations)

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- ° Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data Service, NOAA, monthly publication STORM DATA.
- No Storm Data Report received for this State.
- Report Incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion.

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( ) Clouds Present	DM Moderate Dust	HM Moderate Haze	KS Slight Smoke
* Values corresponding to true solar noon	DS Slight Dust	HS Slight Haze	M Moderate Haze-indeterminable
BD Blowing Dust	F Fog	I Intense Haze-indeterminable	N Sand
BN Blowing Sand	GF Ground Fog	K Smoke	S Slight Haze-indeterminable
D Dust	H Haze	KI Intense Smoke	
DI Intense Dust	HI Intense Haze	KM Moderate Smoke	

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

SOLAR ULTRA-VIOLET RADIATION DATA: These data are from an U-V Eppley total ultra violet sensor and Speedomax H (Leeds Northrup) Recorder. This instrument has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature ( $^{\circ}\text{F}$ . 1941-70), February.



B. Temperature Departure from 30 - Year Mean ( $^{\circ}\text{F}$  1941-70), February 1978

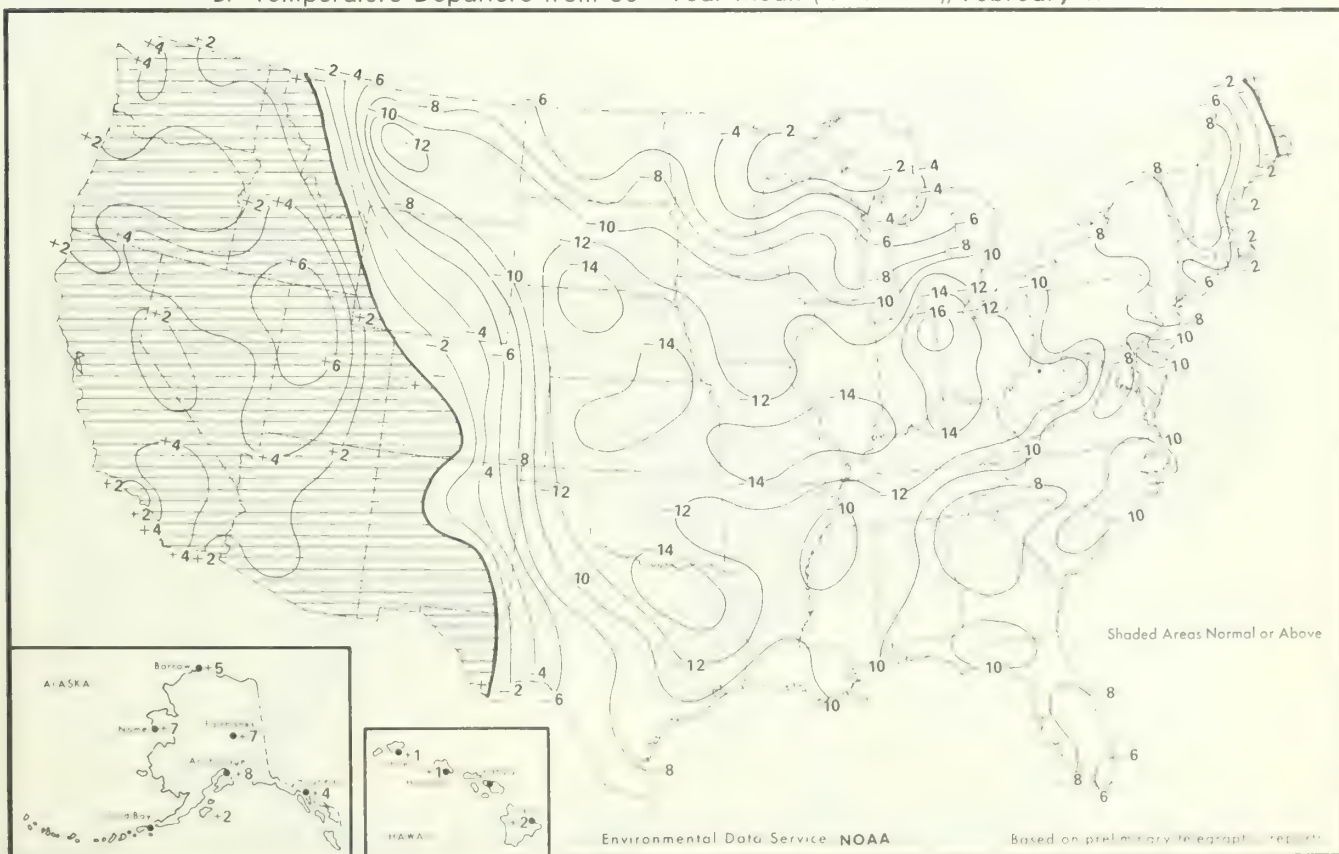
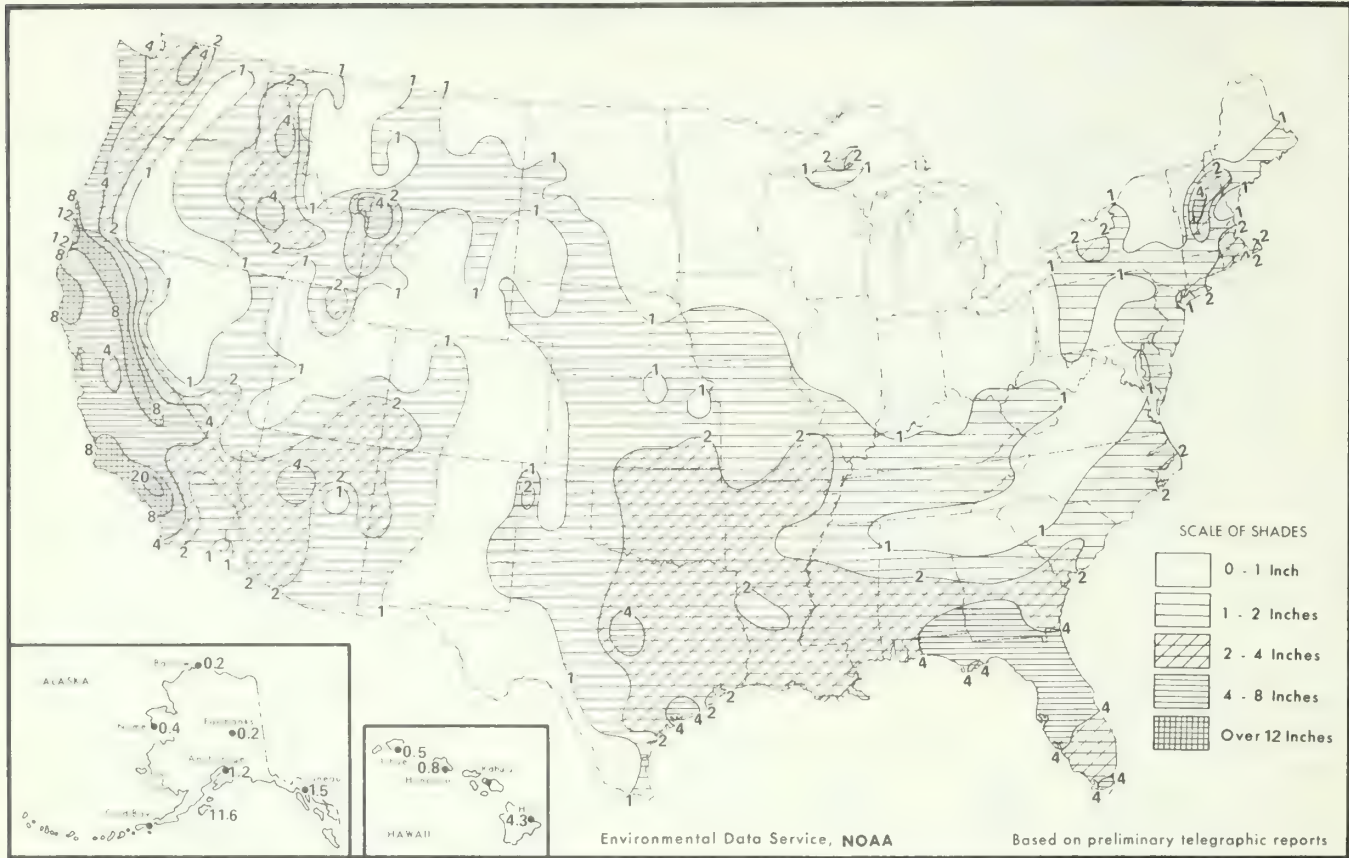


Chart II. A. Total Precipitation (Inches), February 1978



B. Percentage of Normal Precipitation, February 1978

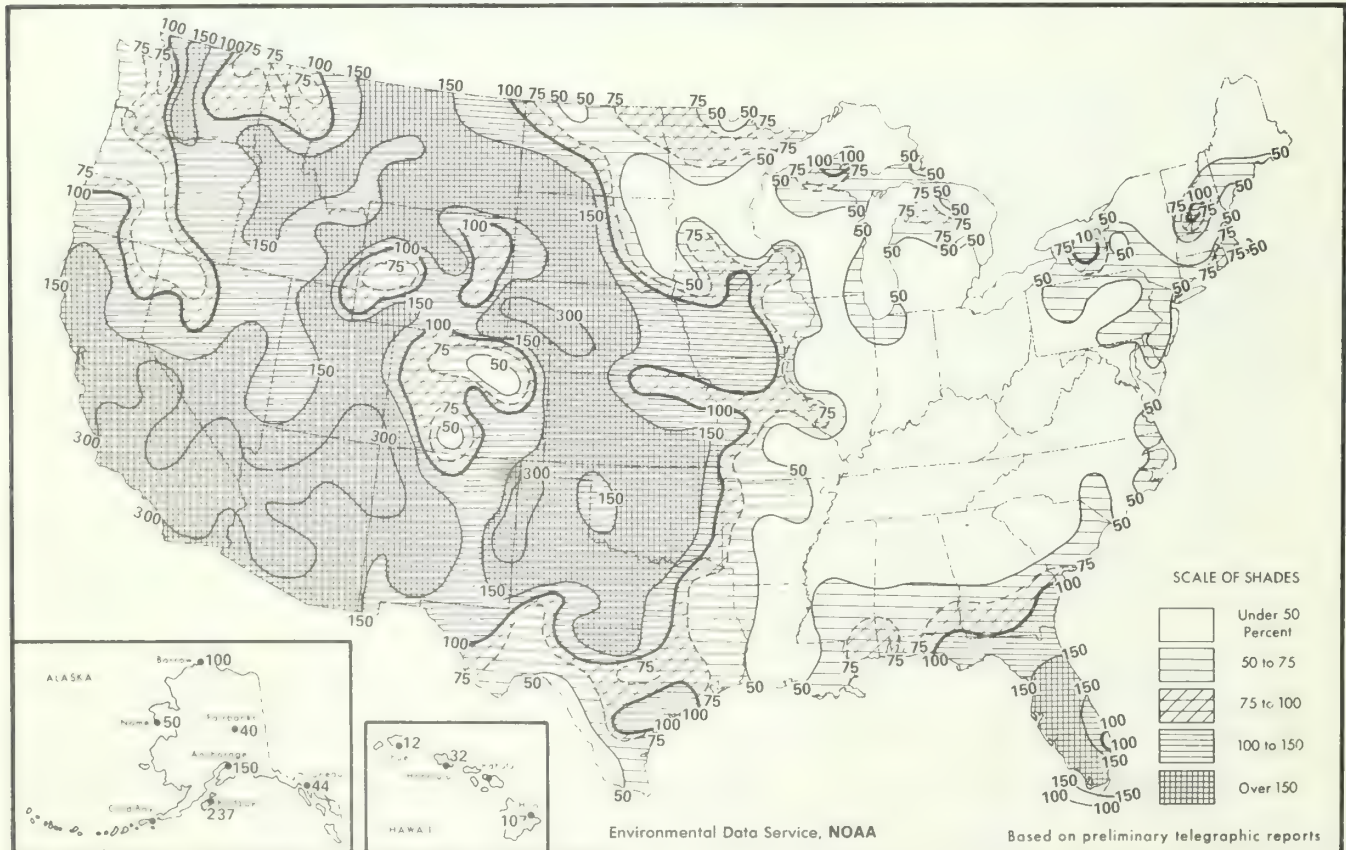
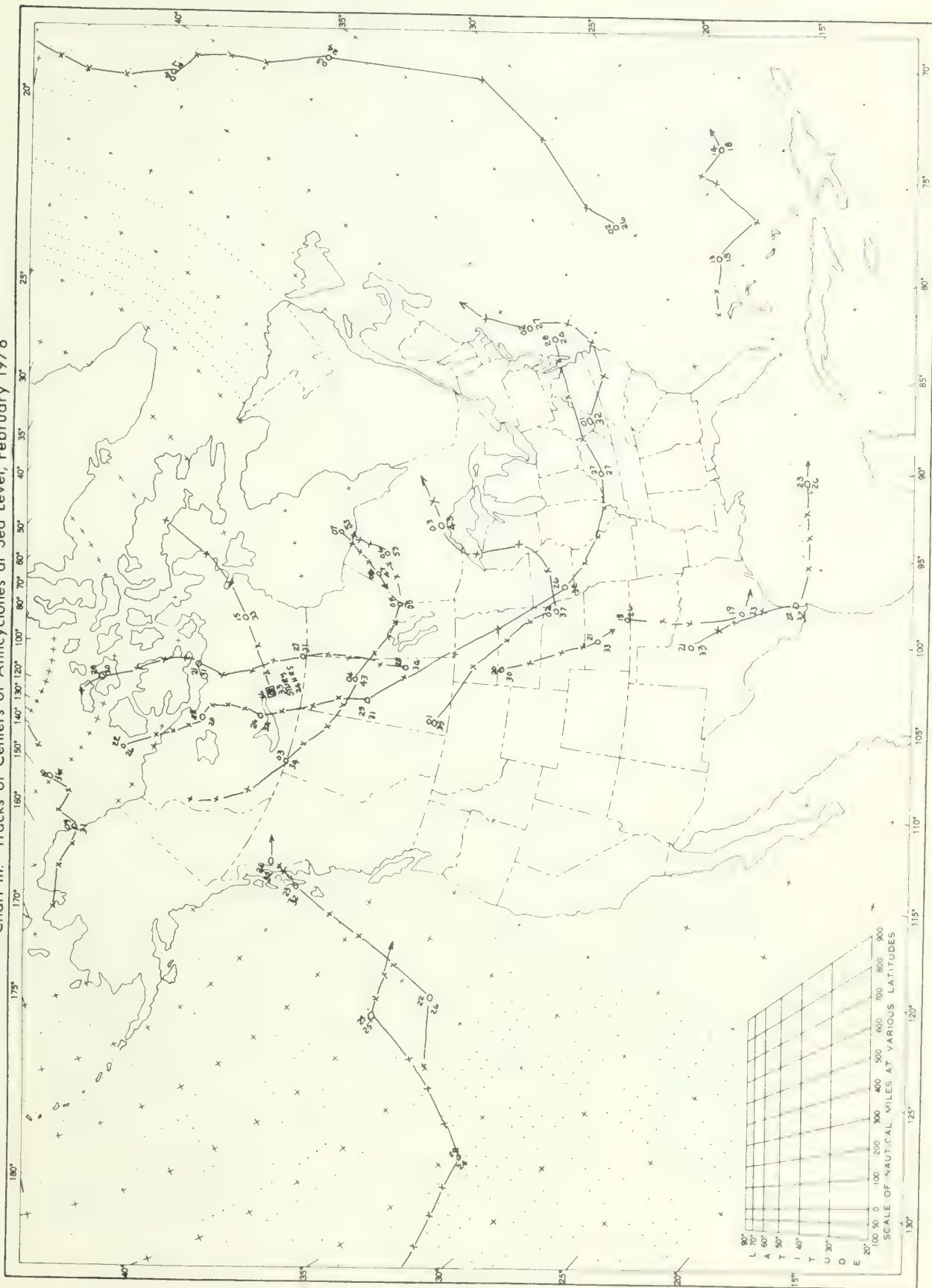


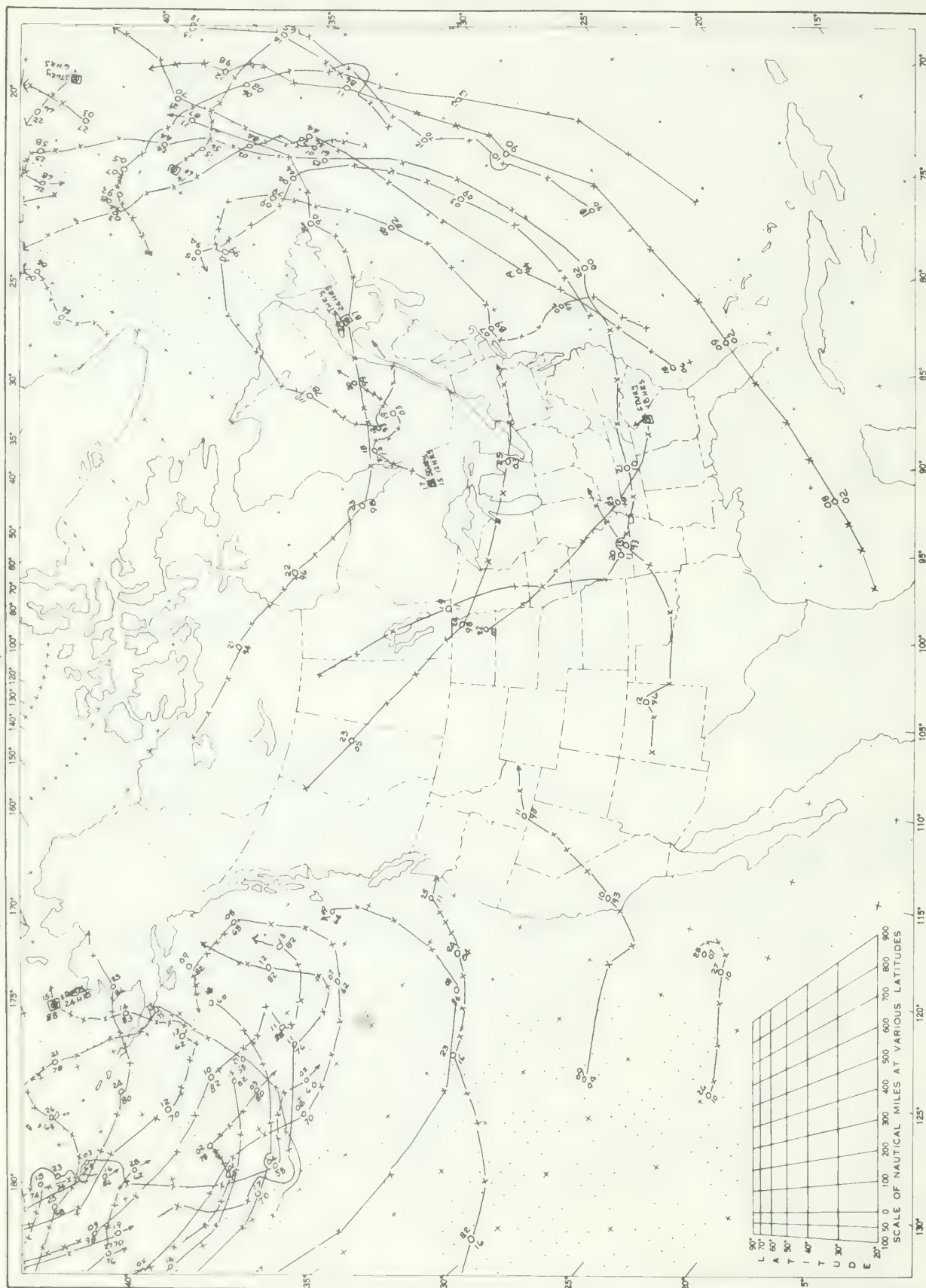


Chart III. Tracks of Centers of Anticyclones at Sea Level, February 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Tracks of Centers of Cyclones at Sea Level, February 1978













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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



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THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRA-  
TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH  
CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

MARCH 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data Service, NOAA

**HIGHLIGHTS:** March turned out to be a typical spring month after a generally colder and snowier than normal winter. Gradual warming started early in the month but did not reach normal temperatures until the last few days. Precipitation climbed above normal in most of the West, however, most of Washington and parts of Oregon did not get the expected amounts of rain. Some very heavy rain in California caused considerable damage. Flooding resulted from rapid snow-melt and rain in much of the central Plains and Midwest.

March came in like a fleecy white lamb. Snow blanketed the Rockies and moved eastward during the first week of the month, adding to the already heavy snow cover. Elsewhere, heavy rain soaked a large portion of California and Arizona while lesser amounts covered the entire Plateau Region. The Southeast also had moderate to heavy rain. Winter was revived as an avalanche of cold air plunged southward and eastward. Record cold temperatures chilled many stations---Elkins, WV, recorded -15°. For the Nation, during the week ending on the 5th, temperatures averaged well below normal in the extreme Northwest and everywhere east of the Rockies.

Winter weather continued into the second week. Heavy snow hit the central Plains. Heavy precipitation was recorded from central Texas into Indiana. Later, heavy precipitation fell from southern Alabama through Maryland, and in the form of snow north of Tennessee and North Carolina. Moderate to heavy rain continued in the West with the greatest amounts falling along the northern California coast. Spring was not to be forestalled though; by the end of the week a general warming started and snow began to melt. The snow cover line receded to the Midwestern States and depths were reduced in most areas. Temperatures averaged over the week ending on the 12th registered well

above normal from the western Great Plains to the West Coast and moderated considerably from the previous week in the East.

The week of mid-March was, typically, one of sharp contrast. Winter tried to hang on by moving cold air southward from Canada. Snow fell in the northern tier of States but, as the cold air encountered warm moist air from the South, a mixture of rain and snow fell in the Nation's mid-section. Melting snow and rain combined causing some flooding in the lower Ohio Valley and threatening other areas. Although freezing readings almost reached the Gulf Coast, daytime temperatures as high as 80° were notched in many areas. In the West and Southwest, little or no rain fell while temperatures remained above normal.

During the week ending on the 26th the rapidly increasing spring temperatures triggered snow melt in most of the Nation. By the end of the week, snow cover remained only in the northern Lakes area, New England, and in some higher elevations. The melting snow along with rain and showers set off severe flooding in several sections. The lower Missouri, the Ohio, and central Mississippi Rivers and their tributaries boiled out of their banks. Rain became heavy from eastern Oklahoma into Indiana and from the southern Appalachians into Pennsylvania. Temperatures edged near or above normal in most of the Nation.

In the last few days of the month, the rapid warming pattern continued and pervaded the entire Nation, melting much of the remaining snow. Temperatures climbed to 90° in Nebraska suggesting mid-summer rather than spring. Moderate precipitation fell in the West, but the Deep South was rainless. Flooding persisted in many areas but began to recede at some points.

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

MARCH 1978

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Brewton 3 SSE	91	31	Valley	9	5	Newton	8.78	Thomasville	1.62
Alaska	Kake	34	28	Upland	-47	7	Mac Leod Harbor	26.11	Willow Lake	.00
Arizona	Gila Bend	96	26	Sunrise Mountain	2	15	Crown King	14.52	Yuma WSO AP	.18
Arkansas	3 Stations	86	31	Hotchkiss Springs 4 WSW	2	4	Jasper	7.63	Eudora	1.53
California	Fontana Kaiser	97	17	White Mountain 2	-8	12	Lytle Creek Ranger Stn.	29.74	Calexico 2 NE	.03
Colorado	Lamar	88	31	Rio Grande Reservoir	-16	15	Rico	6.32	Kauffman 4 SSE	.00
Connecticut	2 Stations	63	23	Coventry	-3	9	Stevenson Dam	5.83	Falls Village	2.74
Delaware	2 Stations	73	21	3 Stations	7	6	Milford 2 WSW	6.67	Middletown 1 WSW	4.63
Florida	La Belle	91	16	Smith Creek	21	5	Carville	10.70	Hart Lake	1.48
Georgia	Thomaston 2 S	91	31	Blairsville Exp. Stn.	7	5	Blakely	9.02	Fort Stewart	1.82
Hawaii	Puukohola Heiau 98.1, HI	93	15	Mauna Loa Slope Obs., HI	26	22	Hono Moku Mauka 138, HI	21.05	Pohakuloa 107	.00
Idaho	4 Stations	84	30	Stanley	-13	1	Fenn Ranger Station	3.33	2 Stations	T
Illinois	Springfield	85	31	Olney 2 S	-15	5	Grafton	6.64	Fullton Dam 13	.44
Indiana	Evansville	83	31	Rushville Sewage Plant	-16	2	Vincennes	6.37	New Castle	1.13
Iowa	2 Stations	89	31	Elkader 5 SSW	-18	5	Fairfield	2.03	Colo	.21
Kansas	2 Stations	92	31	Holton 4 NE	-21	4	Lebo	4.87	3 Stations	.00
Kentucky	2 Stations	85	31	3 Stations	-5	6	Mayfield Radio WNGO	6.06	Vanceburg	D 1.86
Louisiana	2 Stations	86	31	2 Stations	19	5	Plaquemines Exp. Stn.	6.66	Lake Charles 2 N	.69
Maine	Saco	57	29	Rangeley	-28	1	Lewiston	4.53	West Rockport 1 NNW	1.55
Maryland	Baltimore WSO CI	80	21	Oakland 1 SE	-19	2	Royal Oak	7.62	Frostburg 2	2.23
Massachusetts	Chester 2	68	21	Stockbridge	-11	2	Clinton	3.57	Nantucket FAA AP	1.50
Michigan	Three Rivers	78	31	Ironwood	-25	1	Adrian 2 NNE	2.96	St. James Beaver Island	.10
Minnesota	Luverne	85	30	2 Stations	-28	1	Montevideo 1 SW	1.35	High Landing 2 NW	T
Mississippi	2 Stations	88	31	University	10	5	Elliott	5.30	Nitta Yuma	1.19
Missouri	3 Stations	86	31	Edgerton	-22	4	Foston 2 NW	7.68	Lucerne	D 80
Montana	Ballantine	86	30	Denton 1 NNE	-35	3	Lindbergh Lake	1.79	5 Stations	.00
Nebraska	2 Stations	92	31	Halsey 2 W	-26	4	Wahoo	3.25	Mullen 21 NW	.00
Nevada	Sunrise Manr Las Vegas	88	29	4 Stations	8	15	Elgin 3 SE	8.83	Owyhee	.51
New Hampshire	Nashua 2 NNW	63	21	Mount Washington	-23	5	Mount Washington	14.16	Benton 5 SW	1.12
New Jersey	2 Stations	74	21	2 Stations	-1	6	Belleplain State Forest	5.92	Jersey City	2.53
New Mexico	Carlsbad FAA AP	94	31	Chama	-3	15	Brazos Lodge	5.89	Bitter Lakes Wildlife Ref.	.00
New York	Dansville	70	22	2 Stations	-20	8	Slide Mountain	5.98	Mount Morris 2 W	.75
North Carolina	2 Stations	84	25	Celo 2 S	-4	5	Gastonia	9.22	2 Stations	2.94
North Dakota	Medora	79	30	Edmore 1 N	-27	1	2 Stations	1.05	Woodworth 3 E	.02
Ohio	Hamilton-Fairfield	82	31	2 Stations	-16	2	Chilo Meldahl Dam	4.11	Huntsville 3 N	1.57
Oklahoma	Hollis	96	31	Hooker	2	4	Daisy 2 E	7.23	Regnier	.04
Oregon	Lost Creek Dam	82	21	Crater Lake NPS Hqtrs.	5	14	Nehalem 9 NE	7.60	Arlington	.40
Pennsylvania	Uniontown 1 NE	77	22	Clermont 4 NW	-21	2	Octoraro Lake	6.18	Bradford 4 W Reservoir 1	.83
Puerto Rico	Magueyes Island	94	27	2 Stations	51	13	Pico Del Este	18.17	Ponce City	.56
Rhode Island	Providence WSO AP	61	23	Kingston	4	18	North Foster 1 E	3.71	Block Island WSO AP	2.46
South Carolina	2 Stations	85	25	Caesars Head	10	5	Hogback Mountain	9.77	Summerville 3 NW	1.82
South Dakota	5 Stations	89	31	Deerfield 4 W	-33	3	Arlington 3 SW	1.18	3 Stations	T
Tennessee	Nashville WSO AP	86	31	2 Stations	3	5	Athens	6.49	Ripley	2.35
Texas	Rio Grande City 3 W	97	1	Sunray 4 SW	2	4	Trinidad Power Plant	6.07	31 Stations	.00
Utah	2 Stations	84	31	Scofield Dam	-10	16	Snowbird	9.85	Capitol Reef Natl. Park	.22
Vermont	Rutland	65	21	Enosburg Falls	-18	2	Mount Mansfield	6.16	South Newbury	1.36
Virginia	Danville-Bridge St.	81	24	2 Stations	-2	5	Diamond Springs	9.17	The Plains 2 NNE	2.51
Virgin Islands	Christiansted Fort	90	5	Cruz Bay	62	15	Caneel Bay Plantation	5.88	Ham Bluff L H Station	1.32
Washington	Richland	77	19	Chewelah 4 SSW	-10	3	Spruce	10.85	Prowser 4 NE	.33
West Virginia	2 Stations	81	31	Elkins WSO AP	-15	2	Snowshoe	6.10	Lake Lynn	1.49
Wisconsin	Madison WSO AP	81	31	Jump River 5 E	-27	1	Madeline	1.64	Stanley	.03
Wyoming	3 Stations	80	31	Recluse 14 NNW	-36	3	Dixon	2.12	2 Stations	.00



# CLIMATOLOGICAL DATA

METRIC UNITS

MARCH 1978

State and Station	Pressure		Temperature					Precipitation				Wind			No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Total	mm	mm	mm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm

## CLIMATOLOGICAL DATA

METRIC UNITS

MARCH 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind		No. of days sunrise to sunset	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		Station Q	Sea level	Average maximum		Average minimum		Departure from normal		Highest		Lowest		Date	Max 32° or above			Min 0° or lower	No. of days	Average relative humidity																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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		m	mb	mb	mb	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C



CLIMATOLOGICAL DATA  
METRIC UNITS

ARC-4 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)									
		Station Q	Sea level	Average			Departure from normal			Departure from normal			Departure from normal			Fastest mile (1.6 kilometers)		Speed m/s												
				Average maximum	Average minimum	Date	Highest	Lowest	Date	Max 32.2 °C or above	Min 0 °C or lower	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days		No. of days											
																						Average relative humidity		Greatest in 24 hours		25 mm or more		With thunderstorms		Snow, ice pellets
IDAHO	BOISE	1610.1	1018.5	9.2	-0.6	4.3	-2.5	-21.1	5	0	12	-0.6	71	119	0	38	15	2	145	152	0.6	34	13.0	SW	31	5	7	19	7.4	46
	BOISE	1610.1	1018.5	3.9	-3.2	-0.6	-3.1	-20.6	5	0	12	-0.6	71	39	-15	24	11	2	69	278	0.7	29	15.6	NE	25	5	9	17	7.1	64
	BOISE	1610.1	1018.5	6.9	-1.7	-2.6	-3.1	-19.3	5	0	16	-1.7	78	50	-2	178	0.5	32	178	0.5	32	12.1	W	20	5	8	18	7.1	44	
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
IDAHO	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
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IDAHO	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
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	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
IDAHO	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
IDAHO	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
IDAHO	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
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IDAHO	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
IDAHO	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
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	BOISE	1610.1	1018.5	3.7	-4.6	-0.4	-3.3	-17.8	9	0	22	-4.4	73	60	-11	71	11	1	130	408	0.4	27	11.2	W	31	4	8	19	7.4	44
IDAHO	BOISE	1610.1	1018.5	3.7																										

## CLIMATOLOGICAL DATA

METRIC UNITS

MARCH 1978

State and Station	Pressure		Temperature						Precipitation				Wind		No. of days (sunrise to sunset)	No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Station Q	Sea level	Average		Departure from normal	Highest	Lowest	Date	No. of days		Average relative humidity	Total	mm	mm				mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm



## METRIC UNITS

MARCH 1979

[illegible]



## METRIC UNITS

MARCH 1979

[illegible]

# CLIMATOLOGICAL DATA

METRIC UNITS

MARCH 1978

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind				No. of days (sunrise to sunset)		°																																																																																																																																																																																																																																																																																																																																																																								
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal		Highest	Date	Lowest	Date	Max 32° or above	Min. 0° or lower	No. of days	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm or more	With thunderstorms	Total	Snow, ice pellets	Resultant speed		Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10																																																																																																																																																																																																																																																																																																																																																																	
							Average	Departure from normal																									No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days



## (Base 65°F.)

MARCH 1978

- 12 -

# COOLING DEGREE DAYS

(Base 65 F.)

MARCH 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM	0	0	43	HILLO	263	694	551	GRAND ISLAND	5	5	7	CHARLESTON	13	13	61
HUNTSVILLE	0	0	27	HONOLULU	336	846	474	LINCOLN	5	5	0	CHARLESTON U	3	3	68
MOBILE	17	17	99	KAMULU I	312	827	513	NORFOLK	4	4	0	COLUMBIA	1	1	30
MONTGOMERY	6	7	63	LIHUE	274	703	383	SOUTH PLATTE	7	7	0	GRANVILLE-SPRINGBRO	0	0	13
ALASKA				MAHUI				OMAHA	0	0	0				
ANCHORAGE	0	0	0	ROISE	1	1	0	OMAHA (NORTH) WSPU	5	5	0	SOUTH DAKOTA			
ANNETTE	0	0	0	LEWISTON	0	0	0	SCOTTSBLUFF	0	0	0	ABERDEEN	0	0	0
BARROW	0	0	0	POCATELL	0	0	0	VALENTINE	0	0	0	HURON	0	0	0
BARTER ISLAND	0	0	0					NEVADA				RAPID CITY	0	0	0
BETHEL	0	0	0	ILLINOIS				FLAC	0	0	0	SIOUX FALLS	0	0	0
BETHLEH	0	0	0	CAIRO U	3	3	14	FLY	0	0	0	TENNESSEE			
BTG DELTA	0	0	0	CHICAGO J. MAKE	0	0	0	LAS VEGAS	17	17	14	ARISTON	0	0	9
COLD BAY	0	0	0	CHICAGO MIDWAY	0	0	0	RENO	0	0	0	CHATTANOOGA	0	0	18
FAIRBANKS	0	0	0	MOLINE	1	1	0	WINNEBUCCA	0	0	0	KNOXVILLE	0	0	24
GULFANA	0	0	0	PEORIA	0	0	0					MEMPHIS	0	0	23
HOMER	0	0	0	ROCKFORD	0	0	0	NEW HAMPSHIRE				NASHVILLE	1	1	19
JUNEAU	0	0	0	SPRINGFIELD	1	1	0	CONCORD	0	0	0	YAK RIDGE	0	0	12
KING SALMON	0	0	0					MT WASHINGTON MTS	0	0	0				
KODIAK	0	0	0	INDIANA								TEXAS			
KOTZEBUE	0	0	0	EVANSVILLE	0	0	11	NEW JERSEY				ABILENE	35	35	29
MC GRATH	0	0	0	FORT WAYNE	0	0	0	ATLANTIC CITY	0	0	0	AMARILLO	6	6	2
NOME	0	0	0	INDIANAPOLIS	0	0	0	ATLANTIC CITY U	0	0	0	AUSTIN	31	42	76
ST. PAUL ISLAND	0	0	0	SOUTH BEND	0	0	0	NEWARK	0	0	0	BIRMINGHAM	129	192	358
TALKEETNA	0	0	0	ILLWA				TRAFALTON U	0	0	0	JURPUS CHRISTI	74	178	199
UNALASKA ILET	0	0	0	BURLINGTON	0	0	0					DALLAS FT WORTH	16	16	25
VALDEZ	0	0	0	DES MOINES	6	6	0	NEW MEXICO				DEL RIO	71	78	118
YAKUTAT	0	0	0	DOUBUDE	0	0	0	ALBUQUERQUE	0	0	0	EL PASO	8	8	6
ARIZONA				SIOUX CITY	5	5	0	CLAYTON	0	0	0	GALVESTON	5	8	110
FLAGSTAFF	0	0	0	WATERLOO	0	0	0	ROSWELL	8	8	0	HUSTON INTERCON	19	34	97
PHOENIX	92	96	35					NEW YORK				LOUISIANA	12	12	9
TUCSON	94	94	24	KANSAS				ALBANY	5	5	0	MILWAUKEE	38	38	17
WINSLOW	0	0	0	CONCORDIA	5	6	0	RINGHAMTON	0	0	0	PART ARTHUR	29	48	93
YUMA	109	112	109	DODGE CITY	8	8	0	RUFFALO	0	0	0	SAN ANGELO	22	22	42
ARKANSAS				GOODLAND	0	0	0	NEW YORK U	0	0	0	SAN ANTONIO	30	40	88
FORT SMITH	0	0	15	TOPEKA	6	6	0	NEW YORK KENNEDY	0	0	0	VICTORIA	39	37	120
NO. LITTLE ROCK	5	5	18	WICHITA	6	6	0	NEW YORK LA GUARDIA	0	0	0	WACO	21	23	44
LITTLE ROCK	9	9	14	KENTUCKY				ROCHESTER	0	0	0	WICHITA FALLS	27	27	22
CALIFORNIA				COVINGTON	0	0	0	SYRACUSE	0	0	0	UTAH			
BAKERSFIELD	14	17	6	LEXINGTON	0	0	19					HILFORD	0	0	0
BISHOP	0	0	0	LOUISVILLE	0	0	10	NORTH CAROLINA				SALT LAKE CITY	0	0	0
BLUE CANYON	0	0	0					ASHEVILLE	0	0	0				
BUREKA U	0	0	0	LOUISIANA				CARP WATTERAS R	0	0	12	VIRGINIA			
PRASNO	3	3	0	BATON ROUGE	18	26	85	CHARLOTTE	0	0	15	BURLINGTON	0	0	0
LONG BEACH	65	65	7	LAKE CHARLES	20	27	104	GREENSBORO	0	0	11				
LOS ANGELES	92	95	12	NEW ORLEANS	29	44	118	PALEIGH	2	2	17	VIRGINIA			
LOS ANGELES U	92	60	34	SHREVEPORT	3	8	47	WILMINGTON	0	0	31	LYNCHBURG	0	0	0
MT SHASTA R	0	0	0					NORTH DAKOTA				NORFOLK	0	0	8
MAKLANI	2	2	0	MAINE				RISPARCK	0	0	0	ROCKFORD	0	0	8
RED BLUFF	2	1	0	CARIBOU	0	0	0	FARGO	0	0	0	ROCKFORD	0	0	0
SACRAMENTO	0	0	0	PORTLAND	0	0	0	MILLISTON	1	0	0	WALLUPS ISLAND	0	0	0
SANDRIDGE R	0	0	0	MARYLAND								WASHINGTON			
SAN DIEGO	38	46	10	BALTIMORE	0	0	0	OHIO				OLYMPIA	0	0	0
SAN FRANCISCO	0	0	0					AKRON	0	0	0	QUILLAVOTE	0	0	0
SAN FRANCISCO U	8	8	0	MASSACHUSETTS				CINCINNATI OHIO 78	0	0	7	SEATTLE	0	0	0
SANTA MARIA	0	0	0	BLUE HILL JBS R	0	0	0	CLEVELAND	0	0	0	SEATTLE-TACOMA	0	0	0
STOCKTON	0	0	0	ROSTON	0	0	0	COLUMBUS	0	0	0	SPRING	0	0	0
				ROCKFEST	0	0	0	DARTON U	0	0	0	STAMPEDE PASS R	0	0	0
COLORADO								MANSFIELD	0	0	0	WALLA WALLA U	0	0	10
ALAMOSA	0	0	0	MICHIGAN				TOLEDO	0	0	0	YAKIMA	0	0	0
COLORADO SPRINGS	0	0	0	ALPENA	0	0	0	YOUNGSTOWN	0	0	0				
DENVER	0	0	0	DETROIT	0	0	0	OKLAHOMA				WEST INDIES			
GRAND JUNCTION	0	0	0	DETROIT METRO	0	0	0	OKLAHOMA CITY	6	8	11	SAN JUAN P.R.	466	1288	960
PUEBLO	3	3	0	FLINT	0	0	0	TULSA	7	7	10	WEST VIRGINIA			
CONNECTICUT				GRAND RAPIDS	0	0	0	OREGON				REXLEY	0	0	0
BRIDGEPORT	0	0	0	Houghton Lake	0	0	0	ASTORIA	0	0	0	CHARLESTON	0	0	7
HARTFORD	0	0	0	LANSING	0	0	0	BURNS U	0	0	0	ELKINS	0	0	0
				MARQUETTE U	0	0	0	EUGENE	0	0	0	HUNTINGTON	0	0	7
DELAWARE				MUSKOGEE	0	0	0	MENFORD	0	0	0	PARKERSBURG U	0	0	0
WILMINGTON	0	0	0	SAULT STE MARIE	0	0	0	PENDLETON	0	0	0	WISCONSIN			
				MINNESOTA				PORTLAND	0	0	0	GREEN BAY	0	0	0
DIST. OF COLUMBIA				DULUTH	0	0	0	SALEM	0	0	0	LA CROSSE	0	0	0
WASHINGTON DULLES	0	0	0	INTERNATIONAL FALLS	0	0	0	SEXTON SUMMIT R.	0	0	0	MADISON	0	0	0
WASHINGTON NATIONAL	0	0	0	MINNEAPOLIS	0	0	0					MILWAUKEE	0	0	0
				ROCHESTER	0	0	0	PACIFIC AREA							
FLORIDA				ST CLOUD	0	0	0	GUAM TAGUAC R	413	1110	1119	HYUNING			
APPALACHICOLA U	3	3	92					JOHNSTON	397	1154	1048	CASPER	0	0	0
DAYTONA BEACH	96	70	102	MISSISSIPPI				KOROR R	535	1477	1441	CHEYENNE	0	0	0
FORT MYERS	95	137	359	JACKSON	0	2	68	KHAJALEIN	548	1538	1479	LANDER	0	0	0
JACKSONVILLE	31	36	121	MERIDIAN	0	1	68	MAJURE	517	1481	1444	SMITHSON	0	0	0
KEY WEST	195	310	706					PAGO PAGO	483	1466	1388				
LAKELAND U	93	113	270	MISSOURI				POHORE R	554	1521	1414				
MIAMI	163	314	478	COLUMBIA REGIONAL	1	1	8	TRIK MOEN ISLAND	543	1534	1432				
ORLANDO	110	149	260	KANSAS CITY	5	5	0	WAKE	378	1090	1107				
PENSACOLA	21	21	117	ST JOSEPH	7	7	0	YAP R	568	1401	1407				
TALLAHASSEE	11	11	102	ST LOUIS	7	7	0	PENNSYLVANIA							
TAMPA	79	97	268	SPRINGFIELD	0	0	0	ALLENTOWN	0	0	0				
WEST PALM BEACH	152	257	394					FAIRIE	0	0	0				
GEORGIA				MONTANA				HARRISBURG	0	0	0				
ATLANTA	3	3	14	BILLINGS	0	0	0	PHILADELPHIA	0	0	0				
AUGUSTA	1	1	37	GLASGOW	0	0	0	PITTSBURGH	0	0	0				
COLUMBUS	10	10	47	GREAT FALLS	0	0	0	SCRANTON	0	0	0				
MACON	9	9	59	HAVRE	0	0	0	WILLIAMSPORT	0	0	0				
ROME	0	0	13	HELENA	0	0	0					RHODE ISLAND			
SAVANNAH	22	22	72	KALISPELL	0	0	0	ALOCK ISLAND	0	0	0	PROVIDENCE	0	0	0
				MILES CITY	0	0	0								
				MISSOULA	0	0	0								

## STORM SUMMARY

MARCH 1978

[illegible]



## Average monthly values

MAR 1978

[illegible]

ATHENS, GA 987 NR										*	HARRISBURG, AK 1023 NR										*	BARTER ISLAND, AK 1020 MS										*	REYNOLDS, AK 1105 NR										*	RISMACK, ND 957 NB										*
SFC	31	246	5.5	-2.4	30	+5	10	-23.9	-78.9	04	2.5	29	15	-74.3	-27.8	25	.8	31	39	-11.5	-19.5	42	3.3	31	502	-5.4	-8.9	23	+2																									
1000								-19.6	-21.5	06	-5.0	29	150	-22.4	32		.5	17	125	-8.1	-13.2	73	3.7																															
950	31	561	8.2	-4.5	27	+7	30	180	-71.0	-21.5	07	5.5	29	150	-20.8	-19.1	04	.7	31	455	-6.4	-13.0	47	4.4	27	575	-5.0	-8.7	25	+3																								
900	31	14008	7.6	-2.4	26	5+3	30	970	-15.9	-21.4	07	5.5	29	947	-14.7	-19.6	11	.7	31	877	-7.3	-14.8	19	3.2	31	989	-2.4	-9.0	30	3.6																								
850	31	1478	6.0	-5.0	26	6+9	30	1401	-15.8	-23.0	06	4.7	29	1381	-14.3	-19.8	07	.6	31	1321	-8.4	-17.9	10	2.4	31	1443	-2.4	-11.5	30	5.6																								
800	31	13973	4.0	-9.3	26	8+6	30	1857	-16.7	-24.9	05	4.1	29	1840	-15.1	-21.2	13	.4	31	1789	-11.1	-23.1	11	2.6	31	1923	-4.6	-13.6	29	6.7																								
750	31	2405	1.3	-11.3	27	9+3	30	2300	-18.4	-28.6	05	3.2	29	2320	-16.2	-24.8	26	.5	31	2407	-13.8	-23.1	10	2.5	31	2499	-6.7	-14.9	30	8.3																								
700	31	3047	1.2	-14.3	27	11+3	30	2482	-21.1	-29.9	06	2.1	29	2499	-19.1	-27.6	16	.1	31	2500	-20.0	-28.6	10	2.4	31	2599	-10.6	-19.6	29	10.2																								
650	31	31633	-4.8	-10.7	27	13+0	30	3336	-24.0	-31.8	02	1.7	29	3388	-22.8	-30.8	26	1.5	31	3356	-20.1	-30.0	11	2.1	31	3355	-12.5	-20.0	29	12.6																								
600	31	42529	-8.4	-21.5	27	15+4	30	3977	-27.5	-35.8	02	1.7	29	3977	-26.4	-34.8	28	2.3	31	3945	-23.7	-33.7	11	1.8	31	4143	-15.9	-24.4	29	14.1																								
550	31	42929	-13.0	-27.1	27	18+0	30	4598	-31.6	-39.5	.1	2.2	29	4594	-30.6	-37.8	27	3.1	31	4577	-27.1	-36.9	15	.8	31	4793	-20.0	-28.5	29	16.2																								
500	31	50408	-18.1	-31.1	27	21+3	30	5266	-38.1	-42.6	05	2.6	29	5265	-35.1	-42.5	27	3.6	31	5259	-31.7	-40.6	23	.5	31	5493	-24.8	-32.8	29	18.6																								
450	31	64247	-23.5	-35.4	27	23+5	30	5906	-40.6	-43.8	44	3.0	29	5992	-39.9	-44.9	28	4.7	31	5998	-35.7	-44.9	27	1.1	31	6252	-30.0	-37.5	29	20.8																								
400	31	79278	-29.5	-40.8	27	25+3	30	6736	-45.5		31	3.5	27	6788	-45.1		28	6.3	31	6809	-39.7	-44.7	28	1.6	31	7031	-30.1	-42.9	29	23.2																								
350	31	82220	-35.5	-40.4	26	27+7	30	7608	-50.3		34	4.6	27	7674	-50.2		28	7.3	31	7709	-40.6		25	1.3	31	7998	-44.8		29	25.3																								
300	31	9270	-43.8	-44.8	26	31+7	30	8682	-53.6		29	5.6	27	8670	-53.3		28	8.2	31	8719	-50.9		28	2.8	31	9018	-50.4		29	27.2																								
250	31	10475	-51.1		26	37+7	30	9834	-53.0		24	6.3	27	9841	-53.7		28	8.5	31	9901	-51.9		28	1.9	30	10187	-57.2		29	27.5																								
200	31	11190	-55.3		26	42+5	30	11283	-50.5		27	6.4	27	11286	-50.3		28	8.6	31	11351	-50.5		27	2.7	31	11598	-58.4		29	24.4																								
175	31	12275	-56.8		26	39+3	30	12156	-49.5		27	6.4	27	12156	-49.3		28	8.2	31	12225	-49.1		26	3.2	30	12433	-56.3		29	22.6																								
150	31	131728	-58.4		27	38+5	30	13167	-49.1		27	6.8	27	13157	-48.9		28	8.2	30	13237	-49.0		24	3.3	30	13415	-55.0		29	21.3																								
125	31	144867	-61.0		27	34+0	30	14336	-48.8		27	7.1	27	14376	-48.6		28	8.6	29	14433	-50.6		24	4.0	30	144579	-54.4		29	19.2																								
100	31	16243	-64.0		27	28+4	26	15811	-49.1		27	6.0	27	15838	-48.7		28	.7	29	15888	-50.6		33	3.4	30	15936	-57.1		29	16.9																								
70	31	17655	-55.4		27	21+9	29	17298	-44.9		26	5.9	27	17393	-49.1		28	6.9	29	17340	-51.2		22	2.6	30	17446	-58.0		30	14.5																								
50	31	18494	-65.2		27	15+5	24	18173	-49.0		27	5.0	27	18179	-49.1		28	6.7	29	18209	-51.7		22	2.7	29	18244	-58.3		30	13.5																								
40	31	19356	-65.8		24	1+5	23	19188	-48.7		26	5.4	27	19191	-49.2		29	5.7	28	19209	-52.0		20	1.9	28	19213	-58.3		30	10.0																								
30	31	20470	-64.2		24	0+0	22	20386	-49.0		26	4.9	27	20391	-49.2		29	4.5	28	20399	-51.7		16	1.5	27	20361	-58.8		31	8.0																								
20	31	21184	-61.2		23	0+2	21	21087	-49.2		25	3.3	27	21051	-49.3		29	3.1	27	21130	-51.9		10	1.3	27	21169	-58.5		30	6.5																								
15	31	23166	-57.7		28	8+4	19	23472	-49.4		25	3.6	23	23448	-48.7		31	2.6	27	23422	-50.8		10	3.4	25	23570	-58.3		33	4.4																								
25	31	24801	-53.9		27	9+4	14	24794	-48.4		25	2.4	23	24949	-47.8		34	2.7	27	24891	-50.1		10	4.7	25	24724	-56.2		34	3.9																								
20	31	26232	-52.6		27	12+7	8	26048	-46.9		24	23	26047	-46.2		35	2.5	25	26155	-48.9		09	6.2	24	261124	-58.2		35	3.8																									
15	31	28079	-48.8		27	17+6					24	21	28351	-46.4		03	3.5	19	28268	-46.1		09	8.8	24	27943	-56.2		34	3.0																									
10	31	301762	-44.5		26	28+9					15	31	30055	-42.0		06	10.3							20	301508	-51.7		30	6.7																									
7	31	338087	-42.3								6	33	3453	-42.0											16	328890	-46.6		27	13.0																								
5																									4	36574	-39.5		26	18.9																								

ROSELIE, ID 914 MA				BOZEMAN, ID 1018 MA				BROWNSVILLE, TX 1016 MA				ALBUQUERQUE, NM 991 MA				CAPE MATTERAS, NC 1017 MA														
SFC	31	87.1	-4.9	-4.8	13	2.0	31	1	12.3	12.1	33	1.5	31	7	15.5	13.0	13	1.7	31	218	-6.5	-7.0	22	2.4	31	4	8.6	6.0	02	1.2
1000							31	1	14.7	7.8	32	1.7	31	139	10.6	13.3	14	3.1	5	244	-7.7	-7.4		30	150	9.6	4.6	34	27	
950							31	580	11.7	4.9	30	2.1	31	570	14.8	8.3	15	5.4	31	550	-4.2	-4.4	26	3.7	31	570	8.3	3.1	27	2.1
900	31	120.5	7.5	-1.5	13	2.1	31	1403.1	10.3	-4.2	28	3.1	31	1403.1	14.3	1.4	17	4.6	31	970	-8.6	-8.2	28	5.9	31	120.5	6.3	-1.8	27	4.6
850	31	17.1	6.4	-3.4	18	1.4	31	150.6	7.2	-3.5	27	5.6	31	20.1	13.1	-2.1	20	2.8	30	142.0	-7.8	-14.9	27	7.9	31	17.1	4.4	-4.3	-5.5	27
800	31	149.6	6.2	-6.3	25	5.2	31	25.2	7.2	-7.7	28	1.2	31	20.1	13.1	-2.1	20	2.8	30	142.0	-7.8	-14.9	27	7.9	31	149.6	4.4	-5.1	26	0.9
750	31	26.0	-9.2	-2.6	31	6.3	31	2.537	5.8	-11.9	27	8.2	31	2.555	4.8	-7.6	26	4.7	30	2.195	-10.7	-17.1	29	9.1	31	26.0	-9.2	-9.1	26	11.5
700	31	310.5	-3.1	-13.6	27	5.8	31	3.078	2.6	-15.8	27	10.2	31	3.120	5.5	-11.4	27	7.4	31	2.923	-12.7	-20.1	28	14.0	31	310.5	-2.2	-1.7	27	13.8
650	31	316.6	-7.6	-17.1	27	6.8	31	3.634	-4.6	-18.7	27	11.8	31	3.722	1.5	-14.3	27	9.2	30	3.488	-15.1	-25.3	28	16.7	31	316.6	-5.5	-21.2	26	15.9
600	31	422.35	-11.4	-21.6	27	8.0	31	4.339	-4.9	-17.0	27	13.7	31	4.356	-2.7	-17.5	27	11.5	30	4.388	-18.1	-28.9	28	19.0	31	422.35	-9.0	-24.0	26	18.8
550	31	468.7	-15.6	-26.6	27	9.4	31	5.434	-9.7	-25.5	27	15.6	31	5.451	-7.6	-21.2	27	12.3	30	5.733	-22.1	-31.2	28	20.9	31	468.7	-13.3	-27.0	26	22.0
500	31	566.9	-20.4	-30.6	27	11.6	31	5.735	-14.7	-28.6	26	18.0	31	5.755	-12.8	-26.8	27	14.7	31	5.828	-28.6	-37.6	28	23.4	31	566.9	-17.9	-31.1	26	24.8
450	31	693.9	-26.0	-35.8	27	13.7	31	6.731	-27.2	-33.8	26	20.3	31	6.751	-13.1	-30.3	27	18.2	31	7.006	-31.5	-40.5	28	26.5	31	693.9	-24.5	-37.7	26	27.3
400	31	721.1	-37.8	-47.3	27	15.7	31	7.367	-34.7	-40.7	26	23.4	31	7.454	-34.4	-36.6	26	22.8	30	7.688	-40.7	-49.7	28	29.1	31	721.1	-37.8	-47.3	26	31.2
350	31	811.3	-47.8	-56.4	27	17.4	31	8.330	-34.4	-44.8	26	27.1	31	8.411	-31.1	-40.7	27	28.0	30	8.718	-43.7	-52.7	28	32.2	31	811.3	-47.8	-56.4	26	33.0
300	31	917.4	-49.8	-58.4	27	19.4	31	9.402	-61.3	-46.5	26	31.8	31	9.480	-39.1	-47.0	27	31.4	30	9.737	-49.8	-58.8	28	35.2	31	917.4	-49.8	-58.4	26	34.8
250	31	1023.0	-57.1	-67.1	28	21.4	31	10.618	-69.5	-54.7	26	36.1	31	10.713	-67.0	-75.0	27	36.4	30	11.015	-56.9	-65.9	28	38.4	31	1023.0	-57.1	-67.1	26	36.6
200	31	1177.5	-61.1	-71.1	29	23.4	31	12.050	-55.2	-62.7	26	42.9	31	12.150	-60.3	-68.3	27	40.3	30	12.538	-55.2	-64.2	28	40.3	31	1177.5	-61.1	-71.1	26	38.2
150	31	1225.6	-59.5	-69.5	29	25.4	31	12.977	-57.5	-65.0	26	46.1	31	13.076	-69.1	-77.1	27	39.6	30	12.919	-53.1	-62.1	28	41.0	31	1225.6	-59.5	-69.5	26	40.0
100	31	1335.7	-57.2	-67.2	29	27.4	31	13.867	-61.1	-68.6	26	50.1	31	13.966	-64.0	-72.0	27	34.9	30	13.858	-50.1	-59.1	28	42.0	31	1335.7	-57.2	-67.2	26	41.8
50	31	1447.1	-51.7	-61.7	30	29.4	31	14.905	-61.7	-69.2	26	53.1	31	15.009	-67.7	-75.7	27	36.7	30	14.852	-50.7	-59.7	28	43.0	31	1447.1	-51.7	-61.7	26	43.0
0	31	1611.5	-59.0	-69.0	30	31.4	31	16.366	-69.4	-76.9	27	55.7	31	16.468	-72.3	-80.3	27	25.9	30	16.369	-60.0	-69.0	28	44.0	31	1611.5	-59.0	-69.0	26	43.0
10	31	1711.1	-60.2	-70.2	28	11.3	31	17.068	-70.3	-77.8	27	57.4	31	17.170	-73.4	-81.4	27	17.7	29	17.069	-59.7	-68.7	28	45.0	31	1711.1	-60.2	-70.2	26	43.0
20	31	1814.4	-60.5	-70.5	29	9.6	31	18.463	-69.5	-77.0	27	55.3	31	18.565	-72.7	-80.7	28	12.2	29	18.464	-59.7	-68.7	28	46.0	31	1814.4	-60.5	-70.5	26	43.0
30	31	1919.9	-61.0	-71.0	29	7.9	31	19.364	-69.1	-76.6	28	11.5	24	19.465	-71.4	-79.4	28	7.4	29	19.365	-60.0	-69.0	27	17.5	31	1919.9	-61.0	-71.0	27	15.2
40	31	2043.0	-61.6	-71.6	3	5.6	31	20.480	-68.2	-75.7	28	7.8	24	20.481	-68.7	-76.7	28	5.8	27	20.383	-58.4	-67.4	27	15.7	31	2043.0	-61.6	-71.6	27	15.4
50	31	2181.7	-60.9	-70.9	33	4.5	31	21.866	-61.4	-68.9	27	1.1	23	21.865	-62.1	-70.1	27	5.4	26	21.768	-57.4	-66.4	27	10.3	28	2181.7	-60.9	-70.9	27	15.4
60	31	2346.0	-59.4	-69.4	33	3.1	31	23.359	-58.4	-65.9	27	1.2	23	23.358	-55.1	-63.1	27	8.4	25	23.260	-55.4	-63.4	27	6.1	28	2346.0	-59.4	-69.4	27	15.4
70	31	2547.1	-59.5	-69.5	36	2.1	31	25.352	-58.4	-65.9	27	1.2	23	25.351	-53.7	-61.7	27	8.4	25	25.253	-51.4	-59.4	27	6.1	28	2547.1	-59.5	-69.5	27	7.3
80	31	2794.1	-58.4	-68.4	36	3.0	31	26.274	-59.1	-66.6	27	1.2	19	26.273	-54.0	-62.0	27	8.4	25	26.176	-53.0	-61.0	26	5.4	28	2794.1	-58.4	-68.4	27	11.0
90	31	2970.8	-56.4	-66.4	27	2.0	31	26.104	-64.8	-72.3	26	18.5	27	26.222	-63.4	-71.4	26	10.2	19	26.126	-56.1	-64.1	27	7.5	27	2970.8	-56.4	-66.4	27	10.3
10							14	30.805	-44.8	-52.3	27	18.4	28	31.495	-58.4	-66.4	27	11.4	6	30.806	-51.1	-59.1		14	30.812	-42.5	-50.5	27	27.7	



## Average monthly values

MARCH 1978

[illegible]



# RAWINSONDE DATA

Average monthly values

MARCH 1978

GRAND JUNCTION, CO 851 MB												GREAT FALLS, MT 860 MB												GREEN RAY, WY 992 MB												GREENSBORO, NC 988 MB												HARTSFIELD, GA 1014 MB											
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.																	
SFC	31	1472	4.0	-1.2	11	1.5	31	1418	-2.3	-5.9	23	3.3	31	210	-7.2	-9.8	30	1.4	31	275	2.4	-2.4	02	1.3	31	142	16.1	12.7	31	3.8	31	142	15.3	11.1	31	4.2	31	142	13.4	5.9	31	3.9																	
1000	31	1535	6.2	-4.3	12	2.4	31	1453	1.4	-7.4	26	7.5	31	276	-6.3	-9.3	31	2.7	31	275	2.4	-2.4	02	1.3	31	142	15.3	11.1	31	4.2	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
950	31	1582	4.7	-6.0	18	2.5	31	1490	-3.8	-10.9	28	8.0	31	277	-13.5	-13.5	33	3.1	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
900	31	1625	1.4	-6.6	23	2.5	31	1533	-3.8	-10.9	28	8.0	31	278	-10.1	-11.9	31	9.0	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
850	31	1667	-2.4	-10.2	24	4.1	31	1575	-8.8	-13.0	28	9.8	31	279	-12.2	-23.4	30	10.9	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
800	31	1709	-6.2	-14.0	27	6.8	31	1617	-10.0	-17.5	29	11.5	31	280	-14.9	-25.6	30	12.8	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
750	31	1751	-10.5	-18.4	28	7.0	31	1659	-14.0	-20.9	29	13.5	31	281	-18.3	-29.0	30	15.1	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
700	31	1793	-14.9	-22.9	28	6.2	31	1701	-18.2	-25.1	29	14.8	31	282	-22.4	-33.2	30	16.9	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
650	31	1835	-19.3	-27.0	29	6.7	31	1743	-22.4	-29.8	29	16.5	31	283	-26.7	-37.4	29	19.5	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
600	31	1877	-23.7	-31.2	29	7.0	31	1785	-26.6	-34.8	29	18.0	31	284	-31.0	-41.1	29	21.6	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
550	31	1919	-28.1	-35.4	29	7.3	31	1827	-30.0	-39.0	29	19.7	31	285	-35.7	-45.0	29	23.0	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
500	31	1961	-32.5	-39.6	29	7.6	31	1869	-34.0	-43.0	29	22.7	31	286	-40.0	-49.0	29	25.4	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
450	31	2003	-36.9	-43.8	29	7.9	31	1911	-38.0	-47.0	29	23.5	31	287	-44.0	-53.0	29	27.4	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
400	31	2045	-41.3	-48.0	29	8.2	31	1953	-42.0	-51.0	29	24.4	31	288	-48.0	-57.0	29	28.3	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
350	31	2087	-45.7	-52.2	29	8.5	31	1995	-46.0	-55.0	29	25.3	31	289	-52.0	-61.0	29	30.1	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
300	31	2129	-50.1	-56.4	29	8.8	31	2037	-50.0	-59.0	29	26.2	31	290	-56.0	-65.0	29	31.0	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
250	31	2171	-54.5	-60.6	29	9.1	31	2079	-54.0	-63.0	29	27.1	31	291	-60.0	-69.0	29	31.9	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
200	31	2213	-58.9	-64.8	29	9.4	31	2121	-58.0	-67.0	29	28.0	31	292	-64.0	-73.0	29	32.8	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
150	31	2255	-63.3	-69.0	29	9.7	31	2163	-62.0	-71.0	29	28.9	31	293	-68.0	-77.0	29	33.7	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
100	31	2297	-67.7	-73.2	29	10.0	31	2205	-66.0	-75.0	29	29.8	31	294	-72.0	-81.0	29	34.6	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
50	31	2339	-72.1	-77.4	29	10.3	31	2247	-70.0	-79.0	29	30.7	31	295	-76.0	-85.0	29	35.5	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
0	31	2381	-76.5	-81.6	29	10.6	31	2289	-74.0	-83.0	29	31.6	31	296	-80.0	-89.0	29	36.4	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
	31	2423	-80.9	-85.8	29	10.9	31	2331	-78.0	-87.0	29	32.5	31	297	-84.0	-93.0	29	37.3	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
	31	2465	-85.3	-90.0	29	11.2	31	2373	-82.0	-91.0	29	33.4	31	298	-88.0	-97.0	29	38.2	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
	31	2507	-89.7	-94.2	29	11.5	31	2415	-86.0	-95.0	29	34.3	31	299	-92.0	-101.0	29	40.0	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
	31	2549	-94.1	-98.4	29	11.8	31	2457	-90.0	-99.0	29	35.2	31	300	-96.0	-105.0	29	40.9	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
	31	2591	-98.5	-102.6	29	12.1	31	2499	-94.0	-103.0	29	36.1	31	301	-100.0	-109.0	29	41.8	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
	31	2633	-102.9	-106.8	29	12.4	31	2541	-98.0	-107.0	29	37.0	31	302	-104.0	-113.0	29	42.7	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9	31	3.9																	
	31	2675	-107.3	-111.0	29	12.7	31	2583	-102.0	-111.0	29	37.9	31	303	-108.0	-117.0	29	43.6	31	275	2.4	-2.4	02	1.3	31	142	13.4	5.9	31	3.9	31	142	13.4	5.9																									



## Average monthly values

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# RAWINSONDE DATA

Average monthly values

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HOME, AK 1011 HR										NORTH PLATTE, NE 918 HR										OAKLAND, CA 1014 HR										DANA, NE 971 HR										PAGO PAGO, AMERICAN SAMOA 1011 HR									
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tent of deg	Resultant Wind Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tent of deg	Resultant Wind Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tent of deg	Resultant Wind Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tent of deg	Resultant Wind Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tent of deg	Resultant Wind Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tent of deg	Resultant Wind Speed m p.s.													
SFC	24	5	-10.4	-15.9	33	5.5	31	8.7	-3.5	-6.2	0	7	31	13	12.4	8.6	20	1.1	31	403	-3.3	-5.4	35	1.1	31	90	28.6	24.7	26	3.4	31	90	28.6	24.7	26	3.4													
1000	24	110	-7.6	-14.3	04	5.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
950	24	480	-8.3	-15.1	07	5.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
900	24	905	-9.3	-16.2	07	5.1	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
850	24	1346	-10.6	-18.4	07	4.5	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
800	24	1811	-12.1	-21.1	07	4.7	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
750	24	2133	-14.2	-23.5	07	4.3	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
700	24	2483	-17.4	-27.5	06	3.7	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
650	24	3375	-20.5	-28.3	06	3.6	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
600	24	3953	-24.3	-32.1	07	3.1	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
550	24	4953	-27.7	-35.8	06	3.0	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
500	24	5272	-32.1	-41.0	06	1.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
450	24	6059	-36.5	-42.8	06	2.1	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
400	24	6817	-41.5	-46.8	03	7.2	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
350	24	7715	-47.0		05	1.6	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
300	24	8721	-51.9		05	7.1	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
250	24	9898	-53.4		33	1.8	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
200	24	11330	-51.5		27	1.8	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
150	24	12201	-49.5		20	1.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
100	24	13212	-49.2		22	1.0	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
50	24	14649	-49.1		21	1.6	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
0	24	15868	-50.1		23	1.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
500	24	17332	-50.7		20	1.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
400	24	18203	-50.7		19	1.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
300	24	19267	-50.8		11	1.9	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
200	24	20396	-50.8		13	1.8	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
100	24	21849	-51.0		13	1.8	31	100.4	-1.1	-4.5	34	1.2	31	100.2	9.7	-1.3	20	3.3	31	997	1.8	-8.1	30	2.9	31	1019	29.0	17.1	02	4.4	31	1019	29.0	17.1	02	4.4													
50	24	23737	-49.8		10	3.2	27	23583	-54.2		30	4.4	27	23633	-49.8		34	2.4	24	23750	-54.3		29	5.3	24	23849	-54.5		09	10.6																			
0	24	24931	-49.8		10	4.0	27	24726	-54.8		30																																						



# RAWINSONDE DATA

Average monthly values

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SAULT LAKE CITY, UT 871 MB												SAINT DIEGO, CA 1000 MB												SAN JUAN, P. R. 1016 MB												SAULT STE MARIE, MI 999 MB												SPOKANE, WA 931 MB											
Standard pressure surface mb.												Standard pressure surface mb.												Standard pressure surface mb.												Standard pressure surface mb.												Standard pressure surface mb.											
No. of observations												No. of observations												No. of observations												No. of observations												No. of observations											
Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters											
Temperature °C												Temperature °C												Temperature °C												Temperature °C												Temperature °C											
Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C											
Direction												Direction												Direction												Direction												Direction											
Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.											
Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind											
No. of observations												No. of observations												No. of observations												No. of observations												No. of observations											
Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters											
Temperature °C												Temperature °C												Temperature °C												Temperature °C												Temperature °C											
Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C											
Direction												Direction												Direction												Direction												Direction											
Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.											
Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind											
SAULT	31	1.1	1.88	1.0	16	2.5	1.9	1.74	12.8	10.5	17	1.2	31	1.43	6	22.2	26.1	10	1.9	31	221	-8.4	-11.7	34	8	31	720	2.3	-1.5	15	1.1																												
1000	31	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584																													
900	31	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487																													
800	31	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388																													
700	31	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288																													
600	31	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188																													
500	31	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088																													
400	31	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988																													
300	31	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888																													
200	31	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788																													
100	31	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688																													
0	31	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588																													
SAULT	31	1.1	1.88	1.0	16	2.5	1.9	1.74	12.8	10.5	17	1.2	31	1.43	6	22.2	26.1	10	1.9	31	221	-8.4	-11.7	34	8	31	720	2.3	-1.5	15	1.1																												
1000	31	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584																													
900	31	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487																													
800	31	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388																													
700	31	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288																													
600	31	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188																													
500	31	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088																													
400	31	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988																													
300	31	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888																													
200	31	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788																													
100	31	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688																													
0	31	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588																													
SAULT	31	1.1	1.88	1.0	16	2.5	1.9	1.74	12.8	10.5	17	1.2	31	1.43	6	22.2	26.1	10	1.9	31	221	-8.4	-11.7	34	8	31	720	2.3	-1.5	15	1.1																												
1000	31	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584																													
900	31	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487	1.487																													
800	31	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388	1.388																													
700	31	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288	1.288																													
600	31	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188	1.188																													
500	31	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088																													
400	31	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988																													
300	31	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888	0.888																													
200	31	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788	0.788																													
100	31	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688	0.688																													
0	31	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588	0.588																													
SAULT	31	1.1	1.88	1.0	16	2.5	1.9	1.74	12.8	10.5	17	1.2	31	1.43	6	22.2	26.1	10	1.9	31	221	-8.4	-11.7	34	8	31	720	2.3	-1.5	15	1.1																												
1000	31	1.584	1.584	1.584	1.584	1.584	1.																																																				

Average monthly values

NE 15



# SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

MARCH 1978

Date	Sun's zenith distance									
	A.M.				*	P.M.				
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	
ALBUQUERQUE, NM										
Air mass										
	4.19	3.35	2.51	1.67	*	1.67	2.51	3.35	4.19	
DEACTIVATED										

MADISON, WI									
Air mass									
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
1-----		S .74	S .94	S .96	S 1.02	S .98	S .87	S .80	S .72
2-----	S .51	S .63	S .75	S .85	S .90	S .98			
3-----	S .70	S .77	S .85	S .94	S .99				
4-----			S .77	S .90	M .97	M .95	M .83	S .77	S .71
5-----	M .61	M .67	M .76		M .96				
6-----	I .47	I .54	I .61	I .77					
7-----	M .58	M .66	S .75	S .87	S .98	S .87	S .85		S .74
8-----	M .61	M .69	S .78	S .91	S 1.01	S .93	S .82	S .74	S .68
9-----	S .67	S .72		S .91	S .98				
10-----	M .57	M .67	M .77	M .86	M .96				
11-----	I .33	I .44	I .55						
Aver-	.56	.65	.74	.89	.98	.93	.84	.77	.71
ages									

TUCSON, AZ									
Air mass									
	4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64
1-----			1.14	1.30	1.44	1.32	1.17	1.05	.94
2-----		1.07	1.16					1.12	1.01
3-----			1.17						
4-----	.89	.99	1.10	1.27	1.43	1.28	1.10	.97	.87
5-----	.91	1.02	1.13	1.29		1.25	1.10		
6-----	.85	.96	1.05			1.30			
7-----			1.12	1.30	1.46				
8-----	.82								
9-----				1.32	1.49	1.32	1.18	1.05	.96
10-----	.91	1.03	1.16	1.29	1.51	1.33	1.17	1.05	.94
11-----	1.04	1.13	1.26	1.43	1.58	1.41	1.25	1.13	1.05
12-----	1.05	1.16	1.26	1.41	1.54	1.31	1.14	1.06	.97
13-----					1.45				
14-----						1.44			
15-----	.97	1.07	1.20	1.33	1.49	1.31	1.17	1.05	.93
16-----	.84	.98	1.08	1.26	1.44	1.26	1.08	.96	.86
17-----	.88	.98	1.11	1.27	1.46	1.28	1.09	.97	.86
18-----	.77	.88	1.05	1.23	1.46	1.25	1.05	.90	.80
19-----	.86	.98	1.12	1.29	1.48	1.26	1.06	.88	
20-----				1.28	1.45	1.32			.91
21-----					1.45	1.27	1.10	.99	.89
22-----	.94	1.05	1.17	1.31	1.41	1.26	1.07	.97	.87
Aver-	.90	1.02	1.14	1.31	1.47	1.30	1.12	1.01	.92
ages									

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78 7°	75.7°	70.7°	60.0°		60 0°	70.7°	75 7°	78 7°
BLUE HILL OBSERVATORY, MA									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
NO DATA RECEIVED									

MAUNA LOA OBSERVATORY, HI									
Air mass									
	3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34
1-----	1.25	1.34	1.42	1.53					
2-----	1.31	1.40	1.47	1.57	1.67	1.53			
3-----	1.23	1.30	1.38	1.49	1.61	1.47			
4-----	1.24	1.32	1.42						
5-----	1.24	1.32	1.41						
6-----	1.25	1.33	1.41	1.52					
7-----	1.29	1.36	1.45	1.54					
8-----	1.26	1.34	1.43	1.53					
9-----	1.25	1.33	1.42	1.52	1.61	1.49	1.40	1.31	
10-----	1.24	1.32	1.41	1.52	1.63	1.51	1.40	1.32	1.24
11-----	1.25	1.33	1.41	1.52	1.66	1.55	1.42	1.33	1.25
12-----	1.26	1.34	1.42	1.54	1.65	1.52	1.40	1.31	1.24
13-----	1.22	1.30	1.38	1.49					
14-----	1.27	1.32	1.40	1.51	1.61				
15-----	1.21	1.30	1.40	1.53					
16-----	1.28	1.36	1.44	1.54					
17-----	1.25	1.32	1.41	1.52					
18-----	1.29	1.37	1.45						
19-----	1.23	1.30	1.40						
20-----	1.21	1.30	1.38	1.49	1.61				
21-----	1.18	1.28	1.37	1.49	1.63				
22-----	1.20	1.28	1.37	1.49	1.61				
23-----	1.22	1.31	1.40	1.51	1.64				
24-----	1.24	1.32	1.40	1.53					
25-----	1.25	1.31	1.40	1.51	1.64	1.51	1.40	1.29	1.20
Aver-	1.24	1.32	1.41	1.52	1.63	1.51	1.41	1.31	1.23
ages									

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

MARCH 1978

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.	
Lengths	1	2	14	15	33	33	47	84	-31	7	40	48	52	2	25	21	35	25	54	102	44	48	126	4	56	113	100	55	89	131	117	96	50

## SOLAR ULTRA-VIOLET RADIATION DATA

Daily totals and monthly average ( $\pm 3900 \text{ \AA}$ ) at Ames, Iowa.



# REFERENCE NOTES

**OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:** Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

**CLIMATOLOGICAL DATA - METRIC UNITS:** Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

**HEATING DEGREE DAYS:** Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

**COOLING DEGREE DAYS:** Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- ° Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data Service, NOAA, monthly publication STORM DATA.
- + No Storm Data Report received for this State.
- <> Report Incomplete.
- + Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion.

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygriators. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
■	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	GF	Ground Fog	K	Smoke	N	Sand
C	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

**NET RADIATION:** The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

**SOLAR ULTRA-VIOLET RADIATION DATA:** These data are from an U-V Eppley total ultra violet sensor and Speedomax H (Leeds Northrup) Recorder. This instrument has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), March.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), March 1978

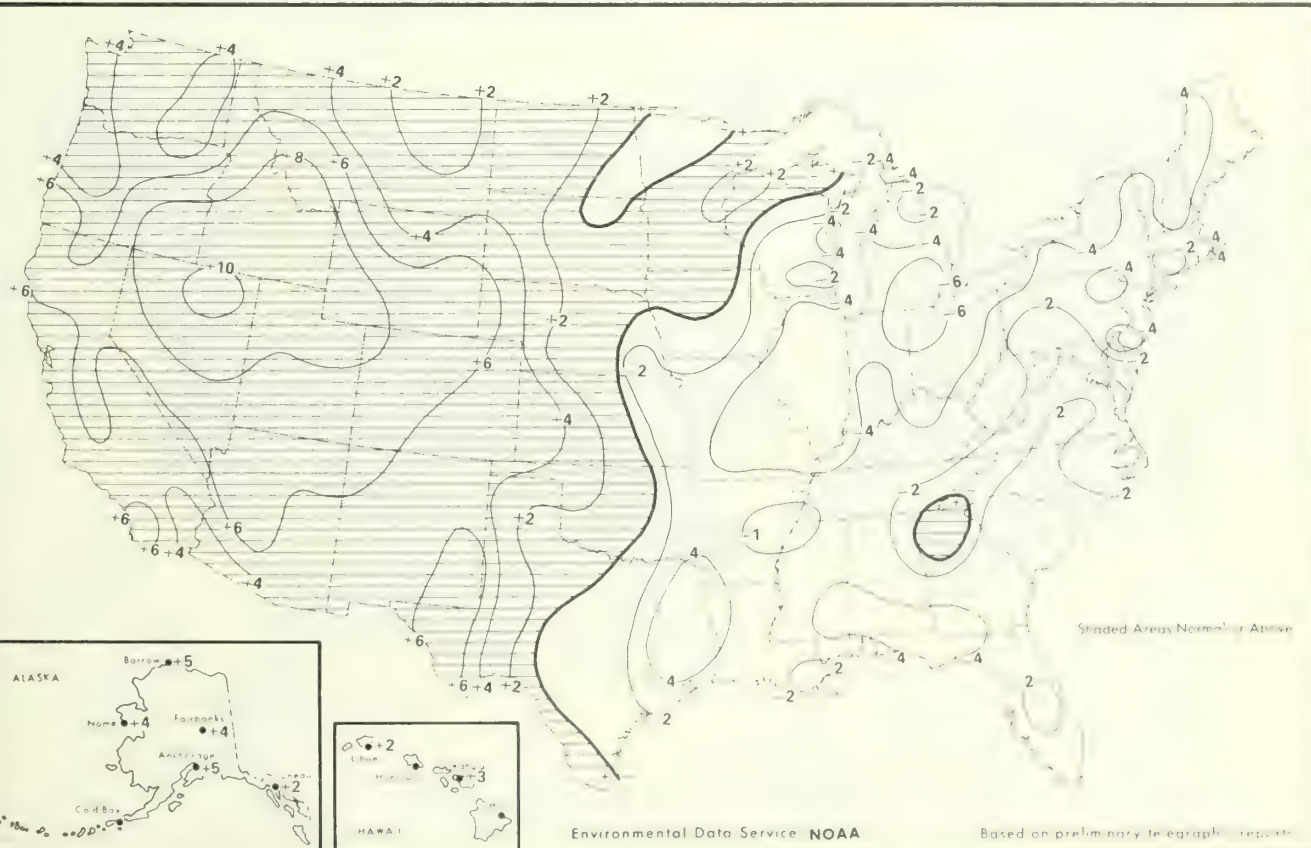
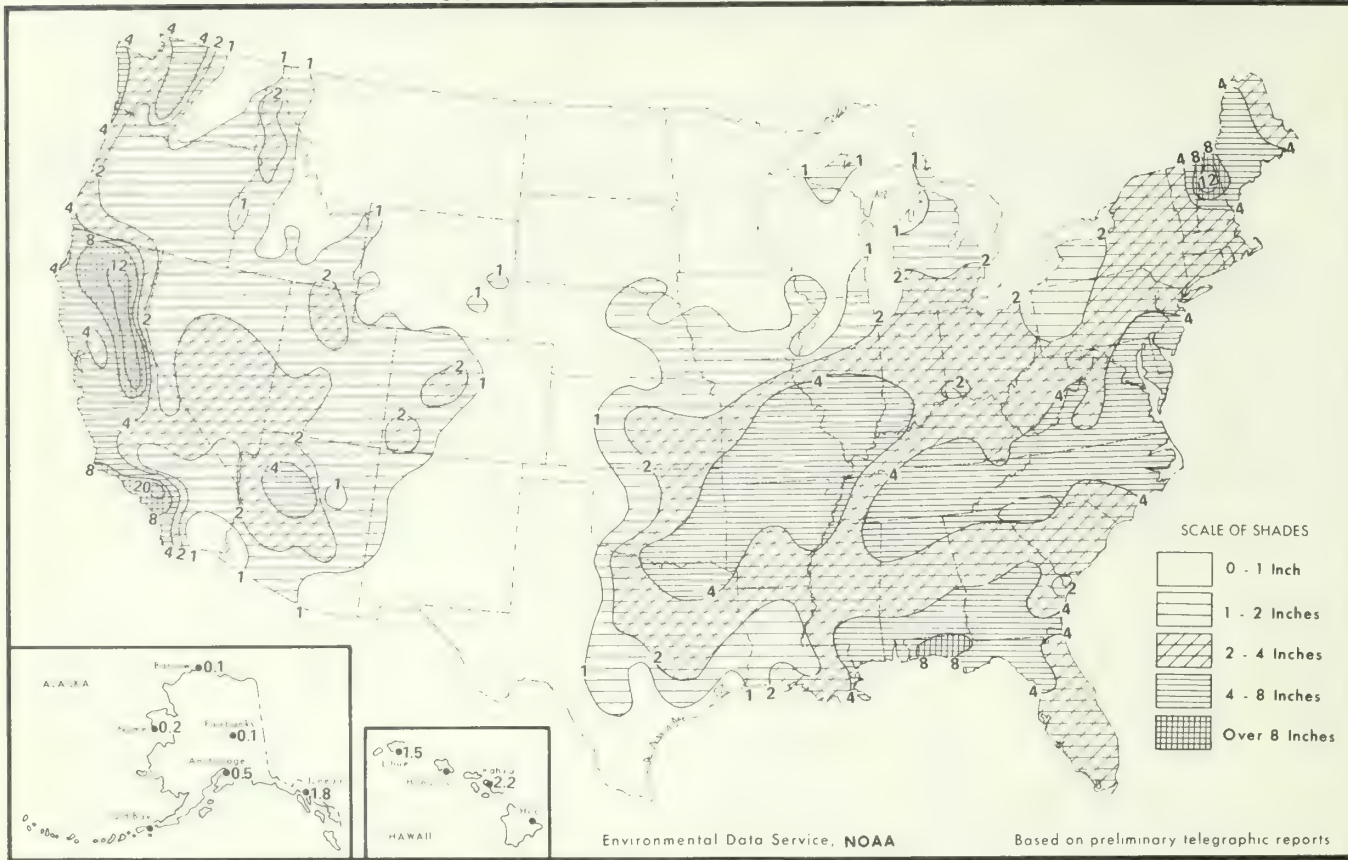




Chart II. A. Total Precipitation (Inches), March 1978



B. Percentage of Normal Precipitation, March 1978

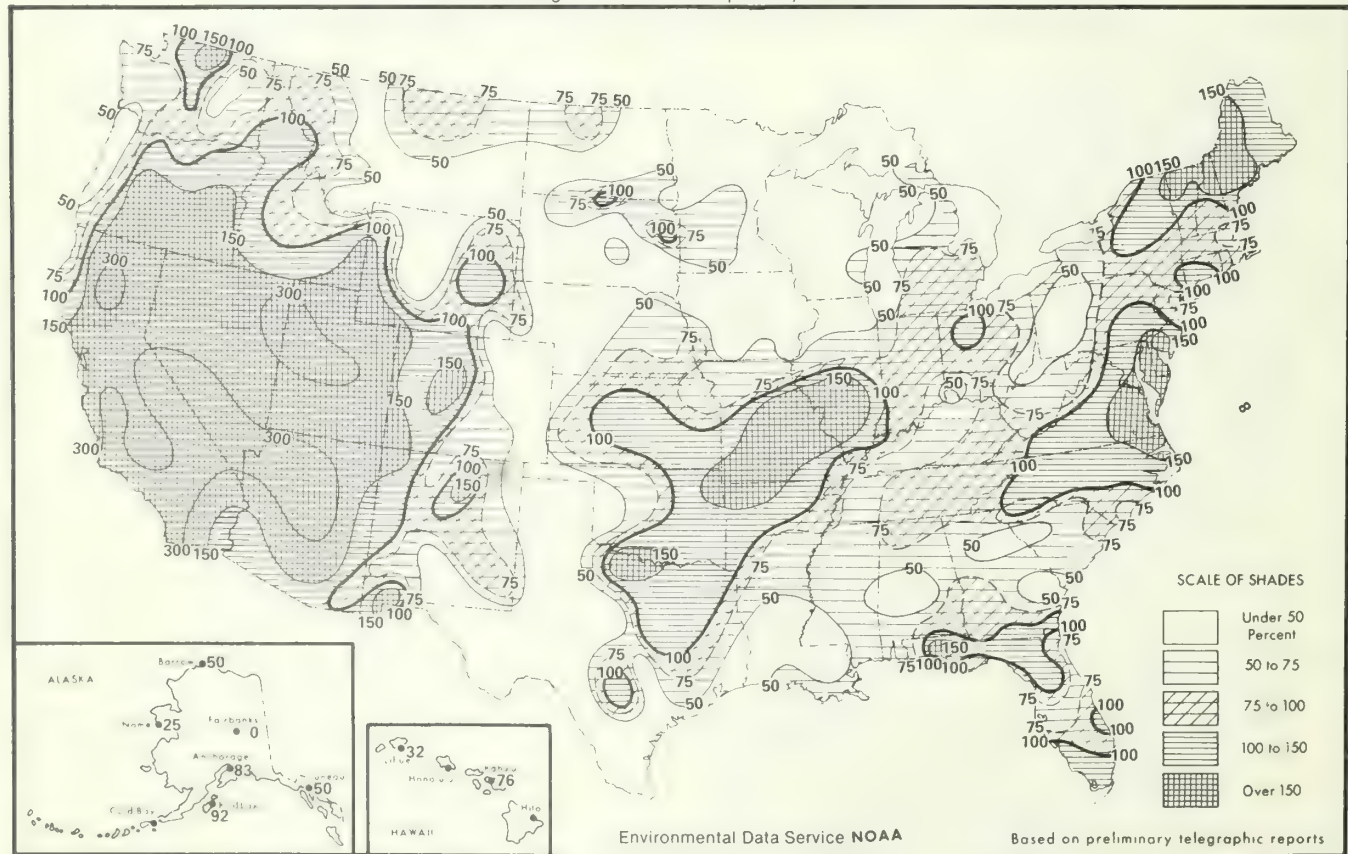
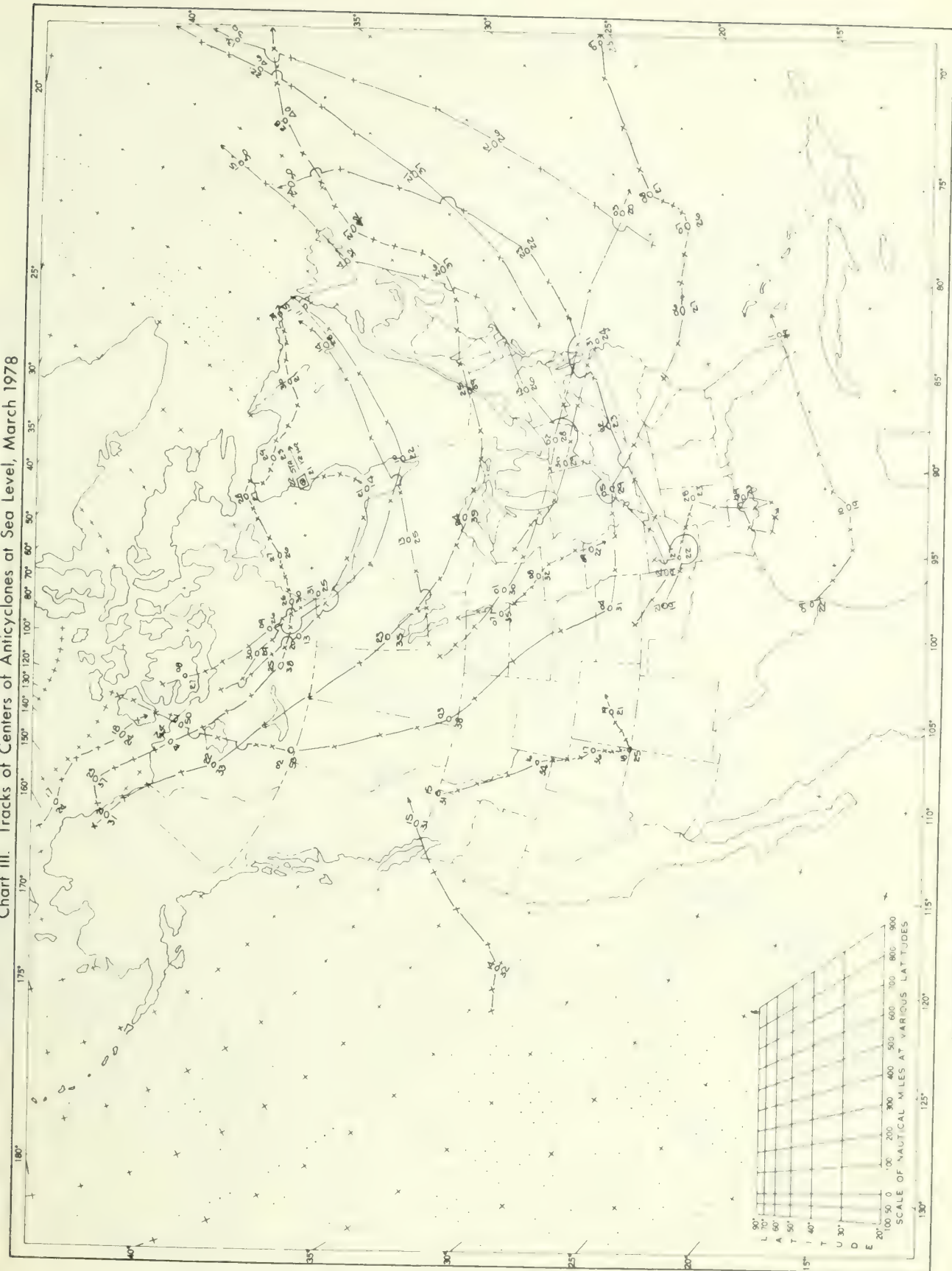


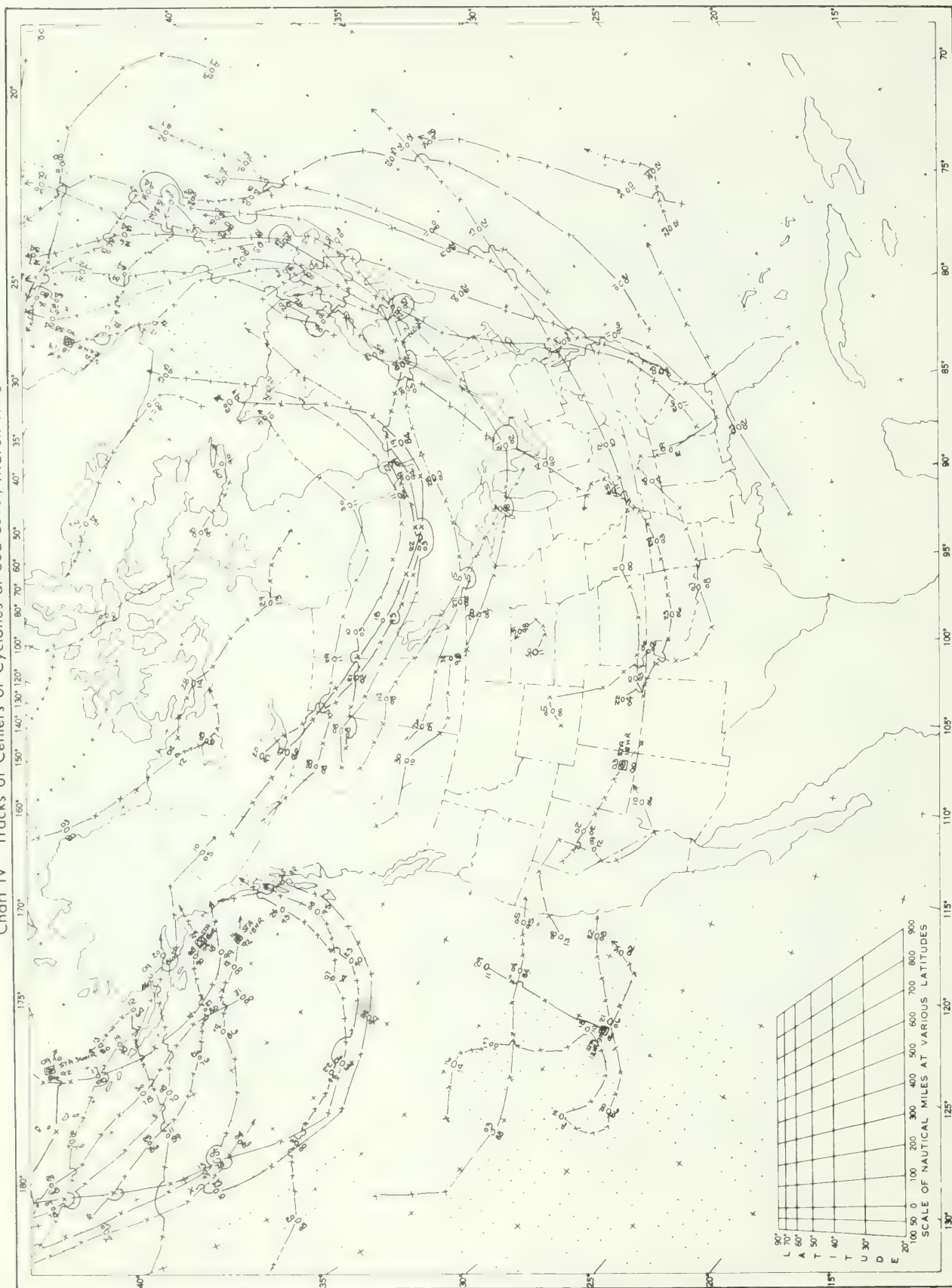
Chart III. Tracks of Centers of Anticyclones at Sea Level, March 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart IV Tracks of Centers of Cyclones at Sea Level, March 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.











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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRA-  
TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH  
CAROLINA 28801."

*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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RESULTS OF THE QUESTIONNAIRE INCLUDED WITH THE DECEMBER 1977 ISSUE OF THIS PUBLICATION  
CONCERNING THE USE OF THE GENERAL SUMMARY OF NATIONAL FLOOD EVENTS AND THE FLOOD STAGE DATA TABLE  
(Thank you for your cooperation. Out of 1,434 subscribers, 451 responded.)

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7. Will your requirements for flood information be satisfied by the presentation in the annual issue of this publication?  
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References and sources where similar flood data and information might be found include:

For those with access to NOAA Weather Wire, information on flooding is transmitted daily in the National Flood Summary.

River Forecasts Provided by the National Weather Service. This annual publication, available from the National Climatic Center, contains maximum stage of record and maximum stage for the year, as well as miscellaneous information such as flood stage for stations operated by the National Weather Service.

Water Resources Review. Published monthly by the U.S. Geological Survey, contains flood information particularly on major or record flooding.

NOAA Technical Memorandum NWS Hydro 34, Annotated Bibliography of NOAA Publications of Hydrometeorological Interest. This publication is currently out-of-print but is being revised and will then be up-dated every year or two. It lists reports on major floods prepared jointly by NOAA and the USGS.

Water Supply Papers of the U.S. Geological Survey. This series contains daily discharge as well as maximum stage for the year at all gaging stations and includes special flood studies and reports.

NOAA survey reports prepared following flood events with large loss of life and/or property damage.

U.S. Geological Survey Professional Papers prepared jointly with NOAA following major floods.

Information on specific streams can be obtained from individual Weather Service Forecast Offices or from District Offices of the U.S. Geological Survey.

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

APRIL 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data Service, NOAA

**HIGHLIGHTS:** April temperatures were well above normal in the early part of the month---as much as 12 to 15° warmer in many areas---but cooler air persisted later in the month. The central Plains and eastward through most of the Corn Belt stayed wet throughout the month so that little progress was made in land preparation or spring seeding. The central and northern Rockies, the intermountain areas and most of the West Coast had above normal precipitation. Heavy rains late in the month from southern Alabama to southern Virginia caused some serious flooding in the Piedmont.

The well above normal temperatures that marked the latter half of March continued in the first week of April. Greening of vegetation leaped ahead in many areas. For the period ending on the 9th, temperatures were as much as 15° above normal in the central Plains and middle Mississippi Valley. Only the West Coast and New England were near or colder than normal. Even though the warm temperatures were a welcome harbinger of spring, excessive rain from the central Plains through the Midwest was not welcome. Land preparation for spring planting was already behind schedule and no further progress was made. The Southeastern United States spent another dry week but some welcome rain fell in West Texas.

Cooler air moved into central United States during the week of the 10th-16th, dropping temperature averages for the week to near or below normal. Average temperatures in the east and west of the Rockies remained slightly warmer than normal. Moderate rain fell in the lower and middle Mississippi Valley and in the Southeast. Light to moderate rain was reported in most of the Corn Belt. Again, little pro-

gress was made in spring seeding or ground preparation. The only rainless areas in the Nation were in parts of Arizona, Utah, Colorado, New Mexico, and southwestern Texas. Significant rain covered the western Plateau, mountains, and coastal areas.

Another surge of cool air covered the entire Nation early in the week of the 17th-23d. Most of the country experienced colder than normal temperatures. The central Plains and parts of the Southeast averaged 9 to 11° colder than normal. The rainless area in the Southwest expanded, but moderate to heavy rain occurred in the Pacific Northwest and from eastern Texas through the northern Plains and to the East Coast. The cool temperatures and continued rain further delayed land preparation and slowed growth of previously seeded crops and pastures. Early morning temperatures of freezing or lower pushed as far southward as parts of Oklahoma, Kentucky, and South Carolina.

The last week in April continued the cool, wet pattern in most of the East---the Northeast had little or no rain. The latter days of the week allowed some drying in the eastern Corn Belt so that progress with plowing and planting was made in Ohio, but little work was done in the rest of the area until the last day of the week. Storm systems moving eastward from the central Plains caused much thunderstorm activity with many reports of tornadoes and hail. A low pressure system moving northward along the coast of the Carolinas produced heavy rain in the mountains and Piedmont; serious flooding resulted. In the West a series of low pressure centers lingered in the mountains causing light to moderate rain. Heavy snow fell at some mountain locations.

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

APRIL 1978

STATE	Temperature						Precipitation					
	Monthly extremes						Monthly extremes					
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least		
		°F			°F			In.		In.		
Alabama	Brewton 3 SSE	92	8	Valley Head	28	22	Geneva 2	7.68	Wet Field 2 SW	.98		
Alaska	Haines	74	21	Umanak	-41	3	Mac Leod Harbor	14.10	3 Stations	.00		
Arizona	Chandler	98	26	Hawley Lake	9	9	Junipine	2.81	11 Stations	.00		
Arkansas	2 Stations	91	9-	3 Stations	28	21	Jessieville	7.47	Texarkana FAA AP	1.58		
California	El Centro 2 SSW	96	12	White Mountain 2	-19	16	Deer Creek Forebay	14.77	Gold Rock Ranch	.00		
Colorado	Lamar	93	7	Taylor Park	-6	10	Glenwood Springs 1 N	5.75	Kat Carson 6 S	.00		
Connecticut	Hartford WSO AP	80	13	Wigwam Reservoir	15	2	Mansfield Hollow Lake	3.00	Falls Village	.77		
Delaware	Newark University Farm	84	1	2 Stations	29	9	Georgetown 5 SW	3.68	2 Stations	1.58		
Florida	La Belle	94	21	2 Stations	37	28	Crestview FAA AP	7.87	Wauchula 2 N	.00		
Georgia	Albany 3 SE	97	10	Blairsville Exp. Station	25	22	Cartersville	6.03	Flomona	1.59		
Hawaii	Puukohola Heiau 98.1, HI	92	28	Mauna Loa Slope Obs., HI	29	8	Kukui 380, Maui	34.00	Pohakuloa 107, HI	.00		
Idaho	Orofino	79	26	2 Stations	3	22+	Grangeville	5.57	Gooding Airport	.77		
Illinois	Harrisburg	88	9	Wheaton 3 SE	22	22	Kankakee Water Poll. Ctr.	5.98	Kaskaskia R Nav Lock	1.52		
Indiana	Shoals Hiway 50 Bridge	87	10+	Ogden Dunes	20	22	Portland 1 SW	6.20	Logansport Radio WSAL	2.36		
Iowa	Cherokee	87	1	Elkader 5 SSW	23	22	Shenandoah	8.18	Sioux City 8 N	1.95		
Kansas	Webster Dam	95	8	Lincoln 1 ESE	19	21	Hiawatha	7.08	Kalvesta 1 W	.00		
Kentucky	Greensburg	90	10	Warsaw Markland Dam	24	14	Lovelandville	5.48	Elkton 2 S	1.84		
Louisiana	6 Stations	89	25-	Ashland 2 S	35	27	Franklinton 3 SW	6.80	Hodges Gardens	.22		
Maine	Sanford 2 NNW	71	13	Van Buren 2	-5	4	Eastport	4.65	Rangeley	2.14		
Maryland	Baltimore WSO CI	90	1	Oakland 1 SE	18	16	Snow Hill 4 N	4.66	Potomac Filter Plant	.82		
Massachusetts	2 Stations	78	13	Cummington Hill	16	3	West Falmouth	3.59	Westfield	1.18		
Michigan	Bloomington	77	1	3 Stations	10	16	Adrian 2 NNE	4.13	Owosso Wastewater Plant	.56		
Minnesota	Winnebago	80	1	Red Lake Indian Agency	10	1	Buffalo	5.69	High Landing 2 NW	.28		
Mississippi	5 Stations	90	9-	Pontotoc Exp. Station	30	12	Crystal Springs 4 NNE	7.24	State University	.92		
Missouri	Salisbury	91	8	2 Stations	26	22+	Brunswick	8.02	2 Stations	1.40		
Montana	Birney 2 SW	79	26	Cooke City	5	24	Yellowtail Dam	5.67	Bloomfield	.11		
Nebraska	2 Stations	93	8	Agate 3 E	16	11	David City	9.52	Harrisburg 10 NW	.85		
Nevada	2 Stations	88	28-	Mount Rose Bowl	6	21	Austin	5.96	Minden	.05		
New Hampshire	Durham	75	13	Mount Washington	-5	3	Mount Washington	9.96	Surry Mountain Lake	1.67		
New Jersey	4 Stations	83	1	3 Stations	21	3	Jersey City	3.66	Belvidere	1.12		
New Mexico	Carlsbad FAA AP	98	27	Eagle Nest	7	19	Clovis	1.62	40 Stations	.00		
New York	2 Stations	82	1	4 Stations	5	3	Plattsburgh	3.85	Millbrook	.58		
North Carolina	Lumberton 6 NW	93	7	Grandfather Mountain	22	20	Kenansville 1 E	9.37	Manteo 2 WNW	1.63		
North Dakota	Pembina 3 N	76	29	2 Stations	14	20+	2 Stations	2.80	Westhope	.24		
Ohio	Gallipolis	87	10	3 Stations	19	23+	Versailles	5.48	Piketon AEC Pump Station	1.49		
Oklahoma	Mangum Research Station	96	1	Boise City 2 E	25	23	Tulsa WSO AP	7.14	Boise City 2 E	.05		
Oregon	Grants Pass	85	10	Crater Lake NPS HQ	8	6	Port Orford 5 E	17.57	The Dalles	.69		
Pennsylvania	Harrisburg FAA AP	85	1	Montrose	11	3	Chalk Hill 2 ENE	4.55	Austin 4 NNW	.81		
Puerto Rico	Maguayes Island	96	29+	2 Stations	54	18+	Pico Del Este	19.37	Ponce City	.31		
Rhode Island	North Foster 1 E	73	13	North Foster 1 E	21	03	Providence WSO AP	2.53	Block Island WSO AP	1.31		
South Carolina	5 Stations	92	8+	Caesars Head	22	22	Cheraw	7.71	Charleston WSO AP	1.97		
South Dakota	Centerville 6 SE	80	1	Deerfield 4 NW	-7	20	Deadwood	6.50	Hermosa 1 W	1.28		
Tennessee	Gatlinburg 2 SW	92	10	Centerville Water Plant	24	22	Cleveland 6 NNE	5.56	Brownsville	1.25		
Texas	Carrizo Springs	104	25	Mount Locke	26	11	Palo Pinto	6.33	12 Stations	.00		
Utah	Moab	84	27+	Blowhard Mtn. Radar	4	17	Snowbird	9.32	Hanksville	.21		
Vermont	Vernon	72	14	Mount Mansfield	3	3	Mount Mansfield	6.49	Vernon	1.56		
Virginia	2 Stations	89	11-	Big Meadows	21	16	Mt. Lake Biological Stn.	8.45	Woodstock	.73		
Virgin Islands	2 Stations	89	30-	Cruz Bay	64	19+	East End	7.10	Alex Hamilton Field FAA	1.59		
Washington	Northport	83	26	Rainier Paradise R S	18	12	Cougar 6 E	11.80	Priest Rapids Dam	.30		
West Virginia	3 Stations	88	11	3 Stations	18	23+	Dry Creek	5.36	Renick 2	.92		
Wisconsin	Arboretum-Univ. of WI	81	1	Madeline Island	8	6+	Arboretum-Univ. of WI	5.55	Buckatunam	1.24		
Wyoming	2 Stations	79	16+	Moose	-5	13	Parkman 5 WNW	4.96	Diversion Dam	.29		



## CLIMATOLOGICAL DATA

METRIC UNITS

APRIL 1978

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## CLIMATOLOGICAL DATA

METRIC UNITS

APRIL 1978

State and Station	Pressure			Temperature				Precipitation				Wind				No. of days (sunrise to sunset)	Sky (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Elevation (ground)	Station Q	Sea level	Average maximum		Average minimum		Departure from normal		Date		No. of days		Average relative humidity				Total mm	Greatest in 24 hours mm	With thunderstorms 25 mm or more	Snow, ice pellets	Maximum depth on ground mm	Resultant speed m/s	Resultant direction	Speed (1.6 kilometers)	Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
				m	mb	C	F	C	F	C	F	mm	mm	mm	mm													mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm



## METRIC UNITS

- 9

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## CLIMATOLOGICAL DATA

METRIC UNITS

APRIL 1978

State and Station	Elevation (m)	Pressure		Temperature										Precipitation					Wind			No. of days		Possible sunshine (sunrise to sunset)									
		Station Q	Sea level mb	Average maximum		Average minimum		Average		Departure from normal		Highest		Lowest		Date		Average dew point		No. of days			Snow ice pellets		Maximum depth on ground	Resultant speed	Resultant direction	Speed (16 kilometers)	Direction	Clear 0-3	Partly cloudy 4-7	Cloudy 8-10	Sky cover (tenths)
				C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C											
NEW YORK NEW YORK KENNEDY NEW YORK LA GUARDIA ROCHESTER SYRACUSE	4	1013.2	1013.8	14.9	5.8	10.3	0.4	23.9	1	-0.6	3	0	1	0.6	55	53	-38	35	8	1	0	0	1.5	31	12.5	9	19	9	10	11	8.7		
	3	1013.2	1014.2	14.5	5.8	10.2	-0.8	26.7	1	-1.1	3	0	1	-0.6	50	50	-41	36	8	2	0	0	2.5	31	16.1	NW	14	7	10	13	6.2		
	167	994.9	1015.3	12.0	0.9	6.4	-1.4	22.8	11*	-3.3	9*	0	12	-0.6	64	57	-12	24	10	1	107	25	28	18.3	SW	11	7	8	15	6.4			
	128	999.7	1014.8	11.6	-0.2	5.1	-2.4	19.4	27	-6.7	3	0	14	-2.2	60	47	-31	11	12	2	10	2.3	29	17.4	W	2	6	9	15	6.7			
NORTH CAROLINA ASHEVILLE CAPE HATTERAS CHARLOTTE GREENSBORO RALEIGH WILMINGTON	652	939.4	1019.2	21.6	6.0	13.9	0.5	28.9	2	0.0	22	0	1	5.6	63	75	-14	39	9	4	0	0	1.1	32	12.5	18	6	7	13	10	5.8		
	2	1016.6	1015.0	19.9	11.4	15.7	0.7	25.6	7	3.9	23	0	0	10.6	73	146	68	54	6	0	0	0	0.6	28	13.4	2	27	13	9	8	6.9		
	224	987.8	1015.1	23.2	9.5	16.4	0.4	30.0	10*	0.6	22	0	0	6.1	55	68	-18	46	8	3	0	0	0.6	28	12.5	SE	24	3	12	6.1	6.8		
	273	985.4	1015.1	20.8	6.9	13.9	-0.9	29.4	1	0.0	22	0	1	5.0	59	105	25	4	9	2	0	0	0.5	29	13.9	SE	27*	10	8	12	5.9		
NORTH DAKOTA BISMARCK FARGO WILLISTON	132	999.0	1014.7	22.3	7.9	15.1	-0.2	31.7	11	0.0	22	0	1	7.2	66	158	77	103	9	3	0	0	0.7	27	11.2	21	1	10	9	11	5.9		
	9	1013.9	1015.1	24.1	11.6	17.9	0.5	32.8	2	5.0	22	2	0	11.1	69	97	22	39	9	4	0	0	1.4	22	15.2	SW	11	12	7	11	5.2		
	502	955.0	1015.7	10.9	0.9	5.9	-0.2	21.1	27	-4.4	11	0	16	-0.6	68	51	14	18	14	0	102	51	0.9	10	24.1	NW	12	1	8	21	8.5		
	579	982.7	1016.0	10.8	0.9	5.8	0.1	21.2	29*	-3.6	11	0	17	-0.6	68	29	-24	10	10	0	71	25	1.2	9	17.4	NW	12	3	5	19	7.7		
OHIO AKRON CINCINNATI CLEVELAND COLUMBUS DAYTON TOLEDO YOUNGSTOWN	368	970.5	1015.5	14.4	2.2	8.3	-0.8	26.1	10	-5.0	22	0	10	0.0	59	56	-28	12	11	5	0	0	1.1	30	13.0	27	1	7	16	6.5	6.7		
	232	981.0	1015.5	18.2	7.1	12.6	0.2	27.2	10	-1.1	22	0	12	2.8	69	79	-15	24	13	3	5	0	0.9	33	15.6	SW	1	7	5	18	6.8		
	247	985.4	1015.3	16.4	4.2	10.3	-0.3	27.7	10	-2.8	22	0	11	5.6	77	77	-18	22	11	3	0	0	0.6	29	14.3	SW	1	7	3	20	7.1		
	303	979.0	1015.2	17.3	4.6	10.9	0.2	27.2	10	-1.1	22*	0	12	3.3	63	90	14	20	11	7	0	0	0.6	27	16.1	SW	1	7	3	20	7.1		
OKLAHOMA OKLAHOMA CITY TULSA	393	979.0	1015.2	14.3	2.6	8.4	-1.6	26.6	10	-2.8	22	0	17	1.1	63	119	35	11	3	3	0	0	0.8	27	16.1	25	1	9	6	15	6.4		
	204	990.2	1015.7	13.9	1.4	7.7	-1.4	25.6	10	-3.9	22	0	12	1.7	68	95	20	15	12	4	0	0	1.0	32	13.0	27	1	9	6	15	6.4		
	359	972.6	1015.6	13.6	1.3	7.5	-1.2	26.1	10	-5.0	9	0	11	0.0	61	74	-17	23	11	4	0	0	1.2	32	13.0	27	1	9	6	15	6.4		
OREGON ASTORIA BURNS EUGENE PORTLAND SALEEM SEXTON SUMMIT	392	966.5	1012.2	24.7	11.4	18.1	2.3	30.0	1	2.8	11	0	0	8.9	60	42	-46	28	8	6	0	0	2.6	15	17.0	NW	19	11	9	10	5.3		
	198	988.2	1012.3	23.9	11.1	17.5	1.5	30.0	1	2.8	21*	0	0	9.4	63	181	75	10	10	8	0	0	2.2	18	13.0	NW	13	9	8	13	5.8		
PACIFIC AREA GUAM GUAM TIAHAN JOHNSTON KOROR KWAJALEIN MAJURO PAGI P																																	



## CLIMATOLOGICAL DATA

METRIC UNITS

APRIL 1979

[illegible]



## CLIMATOLOGICAL DATA

METRIC UNITS

APRIL 1978

State and Station	Pressure		Temperature						Precipitation				Wind			No. of days		Sky cover tenths (sunrise to sunset)														
	Elevation (ground)	Station	Sea level	Average maximum		Average minimum		Average	Departure from normal	Highest		Date	Lowest	Date	No. of days		Average dew point		Average relative humidity	Fastest mile (1.6 kilometers)	Direction	Date										
				C	F	C	F			C	F				mm	inches							mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
WASHINGTON																																
OLYMPIA	59	1007.5	1014.7	14.7	3.2	8.9	-0.1	22.2 10	-3.3 12*	0 7	5.0 80	101	21	15	20	2	0	1.5	20	9.4	23 19*	2	4	24	8.4							
QUILLAYUTE	54	1007.1	1014.5	13.4	2.2	8.6	0.9	20.0 9	-0.6 6	0 1	5.0 83	191	-56	25	21	0	0	0.3	16	7.6	SW 21*	0	6	24	8.7							
SEATTLE II	122	988.0	1014.6	14.1	5.8	9.9	0.7	21.1 24	1.7 6	0 0	9.9 70	106	44	34	17	1	0	1.2	18	13.4	SW 5	2	4	24	8.4							
SEATTLE-TACOMA	122	988.0	1014.6	14.1	5.8	9.9	0.7	21.1 24	1.7 6	0 0	9.9 70	106	44	34	17	1	0	1.2	18	13.4	SW 5	2	4	24	8.4							
SPokane	718	928.2	1012.5	12.9	2.3	7.6	-0.2	22.2 26	-2.2 12	0 10	1.1 68	67	38	23	12	1	0	1.9	19	15.6	W 11	4	5	27	8.5							
STANDE PASS R	1206	875.4		13.6	-1.1	12.3	0.6	16.4 10	-3.9 6	0 23	1.1 88	184	-1	36	21	0	0	0	1	2.4	SW 21*	2	1	27	8.8							
WALLA WALLA U	289			15.8	6.2	11.0	-0.6	24.4 10	-2.2 13	0 0	1.1 88	93	46	26	14	0	0	1.7	28	11.2	SW 21*	4	1	18	7.8							
YAKIMA	321	974.6	1013.3	16.3	3.1	9.7	-0.1	22.2 10	-2.8 21*	0 8	1.1 88	23	10	8	0	0	0	1.7	28	15.6	SW 10	4	1	18	7.5							
WEST INDIES																																
SAN JUAN P.R.	4	1012.5	1015.0	30.3	23.2	26.7	1.4	36.4 28	22.2 28*	5 0	21.1 76	216	124	114	16	3	0	3.0	8	11.2	NE 4	3	23	4	5.9							
WEST VIRGINIA																																
BECKLEY	763	926.2	1014.4	17.4	5.7	11.6	0.7	27.2 10	-1.7 16	0 1	3.3 62	97	13	51	13	2	5	1.5	28	13.4	25 1	3	10	17	7.4							
CHARLESTON	286	981.0	1015.2	20.2	7.2	13.7	0.4	30.6 10	1.7 16	0 0	3.3 55	84	-1	49	15	2	0	1.5	28	10.7	24 1	5	12	13	6.7							
ELKINS	594	944.1		16.8	2.4	9.6	-0.2	26.7 10	-7.2 16	0 8	2.8 51	51	-41	10	13	0	0	0	1.5	6.4	27 1	9	11	13	6.6							
HUNTINGTON	252	985.1	1015.1	19.8	7.9	13.8	0.7	29.4 10	2.8 28*	0 0	2.8 51	103	20	57	14	4	0	0.9	30	10.3	27 1	3	6	21	7.3							
PARKERSBURG U	187			17.7	6.4	12.1	-0.5	28.3 10	0.0 22	0 1	2.8 51	42	-45	19	9	0	0	0	17.0	5	6											
WISCONSIN																																
GREEN BAY	208	990.9	1016.9	9.7	-0.4	4.6	-1.9	22.8 28	-3.3 22*	0 19	-2.2 63	87	19	23	11	3	0	1.9	4	15.6	W 12	5	9	16	6.8							
LA CROSSE	194	991.2	1015.9	13.2	2.2	7.7	-0.9	23.3 28	-3.3 21	0 7	1.1 68	102	35	12	3	0	0	0.7	3	14.3	SW 12	7	16	6	5.6							
MADISON	262	983.7	1015.6	13.8	0.1	6.9	-0.4	23.9 28	-4.4 22*	0 18	0.6 70	89	21	29	14	6	0	1.1	5	16.1	NE 1	6	7	15	6.8							
MILWAUKEE	205	990.5	1016.2	10.2	1.4	5.8	-1.2	18.9 28*	-2.8 22	0 11	0.6 71	112	42	37	11	3	0	1.9	2	16.1	NE 1	6	7	15	6.8							
WYOMING																																
CASPER	1627	833.1	1010.6	14.3	-0.3	7.0	1.1	22.2 26*	-6.7 13*	0 16	-2.8 56	27	-10	10	12	1	137	1.7	25	19.7	26 11	2	6	19	7.7							
CHEYENNE	1867	807.0	1010.2	13.2	0.0	6.6	0.7	21.7 27*	-4.4 12	0 15	-4.4 52	13	-27	3	11	3	25	2.2	28	12.2	SW 18	1	12	17	7.5							
LANDER	1694	844.6	1010.3	14.2	0.6	7.4	1.3	21.7 7	-5.0 22	0 14	-5.6 44	34	-27	2	8	3	1.4	26	19.7	SW 11	4	12	14	7.0								
SHERIDAN	1504	874.7	1011.7	14.9	1.4	8.2	1.7	24.4 26	-4.4 20	0 12	0.0 61	57	4	41	9	1	18	1.8	31	20.1	SW 11	1	9	20	7.8							

(Base 65°F.)

APR 11 1976

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## COOLING DEGREE DAYS

(Base 65°F.)

APRIL 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				IDAHO				SOUTH CAROLINA			
BIRMINGHAM	64	64	107	HILL	283	977	767	POISE	0	1	7	CHARLESTON	106	119	118
HUNTSVILLE	34	34	73	HONOLULU	361	1227	719	LEWISTON	0	0	7	CHARLESTON U	113	116	144
MOBILE	127	144	220	KAMULU	349	1176	469	POCATELLO	0	0	7	COLUMBIA	56	57	86
MONTGOMERY	78	85	147	LIMU	284	987	837					CANVILLE-SPRINGBRO	23	23	37
ALASKA								ILLINOIS							
ANCHORAGE	0	0	0					CAIRO	55	58	51				
ANNETTE	0	0	0					CHICAGO U HAWK	0	0	7				
BARROW	0	0	0					CHICAGO MIDWAY	0	0	7				
BARTER ISLAND	0	0	0					MOLINE	0	1	7				
BETHEL	0	0	0					PEORIA	0	0	7				
BETHEL	0	0	0					ROCKFORD	0	0	7				
BIG HELIX	0	0	0					SPRINGFIELD	8	9	7				
COLD BAY	0	0	0												
FAIRBANKS	0	0	0					INDIANA							
GULFANA	0	0	0					EVANSVILLE	16	16	25				
HOMER	0	0	0					FORT WAYNE	0	0	7				
JUNEAU	0	0	0					INDIANAPOLIS	4	4	7				
KING SALMON	0	0	0					SOUTH BEND	0	0	7				
KODIAK	0	0	0												
KOTzebue	0	0	0					INDIANA							
MC GRATH	0	0	0					BURLINGTON	0	0	7				
MEMPHIS	0	0	0					DES MOINES	0	0	7				
ST. PAUL ISLAND	0	0	0					DURHAM	0	0	7				
TALKEETNA	0	0	0					SIOUX CITY	0	0	7				
UNALASKA	0	0	0					WATERLOO	0	0	7				
VALDEZ	0	0	0												
YAKUTAT	0	0	0												
ARIZONA								KANSAS							
FLAGSTAFF	0	0	0					CONCORDIA	10	16	17				
PHOENIX	158	254	176					DOUGLAS CITY	28	36	14				
TUCSON	76	170	120					GOULDEN	3	3	7				
WINSLOW	2	2	9					TOPEKA	15	21	27				
YUMA	136	248	319					NICHITA	20	26	31				
ARKANSAS								KENTUCKY							
FORT SMITH	60	60	67					COVINGTON	4	4	7				
LITTLE ROCK	100	113	54					LEXINGTON	19	19	21				
NO. LITTLE ROCK	91	96	72					LOUISVILLE	20	23	27				
CALIFORNIA															
BAKERSFIELD	23	40	77					LOUISIANA							
BISHOP	0	0	19					BATON ROUGE	124	155	221				
BLUE CANYON	0	0	0					LAKE CHARLES	126	153	247				



# STORM SUMMARY

APRIL 1978

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				HEAVY SNOWSTORMS AND BLIZZARDS				ICE STORMS				ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE	
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS
Alabama	8	2		33	6			6	3		2	5																	
Alaska												4																	
Arizona	*																												
Arkansas	5	2		10	6			7				5			2														
California	*																												
Colorado												3	4																
Connecticut	*																												
Delaware																													
Florida	6	2		20	6				7		10	5	5	1															
Georgia	2	1			5			6	2		1	5	5																
Hawaii	*																												
Idaho	1	1		1	6																								
Illinois	2	2			5							5	5																
Indiana	4	2									1		5																
Iowa											3	6																	
Kansas	1	1			5			5	6		1	6																	
Kentucky											1	4																	
Louisiana	1	1		14	6			4			1	5	4																
Maine	*																												
Maryland	1	1			4																								
Massachusetts	*																												
Michigan	2	1			2			4				3				2													
Minnesota												5				4													
Mississippi	6	2	4	43	7			6	5			5							1		4								
Missouri	2	2			4			4	3		3	5			1														
Montana																													
Nebraska	8	3		1	8		4	8	5			5	4			5	3			3									
Nevada												4																	
New Hampshire	*																												
New Jersey	*																												
New Mexico												4																	
New York	*																												
North Carolina	4	1		3	5			3	3			2																	
North Dakota																													
Ohio	1	1			5							4																	
Oklahoma	14	4			6		2	6							1														
Oregon																													
Pacific	*											4																	
Pennsylvania											1																		
Puerto Rico																													
Rhode Island	*																												
South Carolina								4	5			4																	
South Dakota								3				5																	
Tennessee	3	2			5			4				5				5				3									
Texas	34	9			6			7	6			5	3																
Utah	*																												
Vermont	*																												
Virginia																													
Virgin Islands	1	1		3	5							6																	
Washington	*																												
West Virginia	*																												
Wisconsin	1	1			5							5				5													
Wyoming	*																												

# RAWINSONDE DATA

Average monthly values

APRIL 1978

ALBANY, NY 1004 MB										ALBUQUERQUE, NM 835 MB										AMARILLO, TX 887 MB										ANCHORAGE, AK 1007 MB										ANNETTE, AK 1009 MB																																																																																																																																																																																																																																																																																																																																																					
Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb																																																																																																																																																																																																																																																																																																																																																					
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters																																																																																																																																																																																																																																																																																																																																																					
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C																																																																																																																																																																																																																																																																																																																																																					
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C																																																																																																																																																																																																																																																																																																																																																					
Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind																																																																																																																																																																																																																																																																																																																																																					
Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg																																																																																																																																																																																																																																																																																																																																																					
Speed m.p.s.										Speed m.p.s.										Speed m.p.s.										Speed m.p.s.										Speed m.p.s.																																																																																																																																																																																																																																																																																																																																																					
No. of observations										No. of observations										No. of observations										No. of observations										No. of observations																																																																																																																																																																																																																																																																																																																																																					
500	20	98	3.2	-1.5	38	1.6	30	1,619	7.3	-5.7	08	1.1	30	1,095	9.8	.6	23	1.5	30	45	1.6	-3.5	23	.5	30	37	5.2	2.8	12	1.8	30	117	2.4	-4.1	21	.5	27	122	5.6	1.7	13	1.5																																																																																																																																																																																																																																																																																																																																																			
1000	19	167	2.1	-4.6	31	1.9	27	2.1	30	1,454	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
950	20	545	2.1	-5.6	31	4.1	27	2.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
900	20	969	1.3	-7.0	31	6.3	27	2.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
850	20	1,420	-1.6	-8.3	31	9.0	27	2.1	30	1,454	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
800	20	1,907	-2.4	-10.9	31	10.3	27	2.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
750	20	2,416	-5.8	-14.2	31	11.1	26	7.7	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
700	20	2,955	-7.9	-19.4	30	11.7	26	7.7	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
650	20	3,478	-10.3	-23.2	30	13.3	26	9.5	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
600	20	4,104	-13.2	-26.9	30	15.5	26	12.6	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
550	20	4,800	-17.0	-30.5	30	17.0	26	15.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
500	20	5,509	-21.7	-35.1	30	17.1	26	16.9	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
450	20	6,276	-27.1	-39.5	29	18.4	25	18.8	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
400	20	7,115	-33.3	-45.0	29	19.0	25	20.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
350	20	8,043	-39.9	-46.4	29	22.8	25	23.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
300	20	9,077	-46.8	-46.4	29	25.7	25	25.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
250	20	10,077	-53.4	-46.4	29	26.0	25	25.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
200	20	11,077	-54.9	-46.4	29	26.0	25	25.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
175	20	12,051	-53.7	-46.4	29	19.7	26	27.9	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
150	20	13,545	-52.6	-46.4	29	19.2	26	24.4	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
125	20	14,720	-54.1	-46.4	29	16.1	26	21.1	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
100	20	16,147	-55.7	-46.4	29	14.2	26	18.4	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
80	20	17,503	-57.1	-46.4	29	9.6	26	11.5	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
60	20	19,006	-59.7	-46.4	29	7.2	26	7.2	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																				
40	20	19,937	-58.3	-46.4	29	5.5	30	1,452	12.1	-9.9	24	5.4	30	1,396	-5.0	-10.6	12	2.7	30	1,423	-2.8	-5.8	16	4.0	7.3	19	4.3	30	2,468	-11.3	-17.0	15	4.6	30	2,405	-8.7	-13.3	19	4.3																																																																																																																																																																																																																																																																																																																																																						
20	20	20,526	-57.7	-46.4	29	2.9	29	20,550	-62.9	30	1.6	27	20,540	-62.5	27	1.4	29	20,498	-51.9	14	2.3	28	20,455	-55.1	11	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1



Average monthly values

APRIL 1978

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## Average monthly values

MEXICO

JACKSON, MS 1004 MS										JOHN F. KENNEDY INT. AP NY 1014 MR										JOHNSTON IS., PACIFIC AREA 1015 MR										KEY WEST, FL 1016 ME										KING SALMON, AK 1006 MB									
850	30	100	12.7	11.1	17	1.0	30	5	6.7	-1.1	32	1.8	30	8	24.9	20.4	08	7.4	30	23.0	18.8	09	2.2	30	15	1.1	-3.1	10	2.0																				
1000	25	141	14.0	10.5	18	1.8	28	130	5.9	-1.8	32	2.2	30	137	23.4	19.3	08	7.8	30	139	22.4	18.1	09	3.5	21	107	1.4	-3.3	14	1.3																			
950	30	508	15.5	5.5	22	4.5	30	539	4.0	-3.3	31	4.2	30	583	19.7	17.2	08	8.7	30	584	19.1	15.1	10	3.9	30	476	3	-4.0	12	3.8																			
900	30	10205	13.4	1.4	24	9.0	30	178	2.6	-5.1	31	6.8	30	1048	16.7	13.3	08	8.5	30	1047	16.1	10.9	12	2.6	30	908	-2.5	-6.4	14	3.8																			
850	30	1505	11.4	-2.3	24	6.0	30	1439	1.2	-7.2	30	12.1	30	1533	13.8	8.7	08	7.8	30	1532	13.7	4.7	16	1.6	30	1359	-5.2	-9.7	14	3.5																			
800	30	2509	-8.6	-26	30	3.0	30	1925	-9.9	-10.2	30	12.1	30	2042	-6.6	3.1	08	6.4	30	2041	12.0	-32.8	19	1.0	30	1493	-1.3	-12.3	15	2.8																			
750	30	2543	6.9	-10.5	27	6.7	30	2430	-2.9	-10.8	29	14.2	30	2581	9.7	-5.6	08	5.0	30	2579	5.5	-5.6	25	1.1	30	2333	-10.6	-16.6	15	2.8																			
700	30	3106	3.8	-12.4	28	6.0	30	2983	-5.3	-19.3	29	15.9	30	3152	8.1	-11.5	06	2.8	30	3149	6.7	-10.7	27	2.1	30	2860	-13.5	-20.4	17	2.1																			
650	30	3702	-4	-15.7	28	10.3	30	3551	-8.1	-71.4	29	18.0	30	3760	4.9	-14.8	03	2.1	30	3754	3.9	-14.0	28	3.6	30	3421	-16.4	-24.7	17	1.6																			
600	30	4037	-6.7	-18.1	28	20.6	30	4119	-11.5	-27.4	29	20.3	30	4408	1.4	-18.8	35	3.2	30	4400	1	-18.5	29	5.7	30	4019	-19.9	-27.3	21	1.6																			
550	30	5216	-19.1	-23.0	28	11.9	30	4841	-19.7	-27.9	29	21.3	30	5103	-22.9	-22.4	32	3.4	30	5091	-4.6	-22.7	29	7.3	30	4659	-24.1	-31.7	23	1.8																			
500	30	5774	-14.1	-27.5	25	16.4	30	6361	-1.2	-33.1	29	24.3	30	5740	-2.7	-26.5	31	5.1	30	5834	-9.5	-25.7	29	9.3	30	5348	-28.8	-36.8	24	2.0																			
450	30	6538	-16.7	-27.7	27	19.7	30	6336	-3.5	-38.3	29	27.6	30	6065	-12.9	-29.8	30	3.0	30	6045	-12.2	-32.8	29	12.2	30	5617	-34.2	-42.6	23	1.8																			
400	30	7640	-26.2	-38.0	27	19.2	30	7171	-31.5	-43.6	29	28.6	30	7349	-19.5	-35.9	29	10.2	30	7519	-21.6	-37.5	29	15.6	30	6909	-40.1	-42.0	26	3.5																			
350	30	8356	-33.3	-45.2	27	21.6	29	8107	-38.6	-46.1	29	31.0	30	8530	-26.6	-41.2	29	14.1	30	8492	-28.8	-43.3	28	19.9	29	7814	-46.4	-57.7	27	5.1																			
300	30	9418	-41.4	-46.7	27	25.5	27	9153	-46.3		29	34.4	30	9024	-34.0	-46.8	29	20.9	30	9574	-37.0	-50.7	28	25.4	29	8823	-51.6	-57.4	27	7.4																			
250	30	10632	-50.7		27	28.5	25	10346	-53.1		29	30.4	30	10880	-42.1	-53.8	28	27.4	30	10810	-45.8		28	30.1	29	10000	-53.0		27	8.9																			
200	30	12006	-57.7		27	29.7	24	11172	-55.0		29	32.7	30	12355	-52.9		28	29.8	29	12270	-54.2		27	32.6	29	11444	-51.4		26	6.3																			
150	30	12701	-39.0		27	36.0	22	13672	-54.3		29	37.2	30	14290	-54.3		28	28.2	29	13117	-58.7		27	32.6	29	12312	-50.9		25	5.8																			
100	30	13865	-60.1		27	36.0	22	13672	-54.3		29	37.2	30	14194	-62.9		28	28.2	29	144075	-63.4		27	29.1	29	13318	-50.2		24	5.5																			
125	28	14993	-62.5		27	29.0	19	14783	-55.0		28	21.6	29	15240	-73.1		29	24.1	29	15181	-68.7		27	25.2	28	14503	-50.3		23	4.0																			
100	28	16336	-65.6		27	21.9	18	16198	-57.8		29	15.5	29	16332	-77.5		29	14.9	29	16500	-73.5		28	17.7	28	15954	-50.8		22	4.0																			
80	27	17707	-67.5		27	3.6	18	17604	-59.1		29	11.0	27	17803	-77.6		29	6.8	29	17799	-74.7		28	8.5	28	17410	-51.6		21	3.2																			
70	27	18171	-67.5		27	3.6	18	18400	-54.5		29	8.1	25	18572	-74.6		29	3.4	29	18579	-72.5		28	4.2	28	18275	-52.0		20	2.8																			
60	27	19446	-67.5		28	5.5	19	19055	-59.4		29	4.1	25	19195	-64.9		29	1.3	29	19196	-68.8		28	1.7	28	19273	-52.6		18	2.8																			
50	27	20555	-63.1		31	8.1	18	20567	-54.1		30	8.8	22	20985	-64.9		30	6.6	27	20986	-66.4		28	3.2	27	20986	-66.4		19	1.6																			
40	24	21939	-59.1		32	1.6	15	21956	-57.6		29	3.4	29	21985	-60.2		28	1.6	25	21985	-58.4		06	3.3	26	21885	-53.4		12	2.8																			
30	24	23757	-55.7		04	1.1	14	23783	-55.7		08	5.7	20	23774	-54.8		35	1.9	23	23816	-52.9		08	3.1	25	23735	-53.6		11	4.0																			
20	24	24924	-53.5		31	1.1	12	24935	-54.7		03	1.5	12	24945	-52.0		03	1.5	12	25001	-49.9		05	1.2	25	24907	-53.7		10	5.5																			
10	24	26987	-50.5		28	2.6	12	26308	-53.1		18	26400	-48.1		04	2.2	22	26247	-45.9		28	9	24	26341	-53.4		10	6.5																					
0	24	28986	-46.3		27	7.4	8	28231	-49.9		18	28323	-43.5		09	3.8	16	28397	-41.1		27	7.5	19	28203	-51.5		10	7.7																					



## Average monthly values

APR 11 1978

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# RAWINSONDE DATA

Average monthly values

APRIL 1978

NOME, AK 1010 MB										NORTH PLATTE, NE 914 MB										DANLAND, CA 1015 MB										OMAHA, NE 966 MB										PAGO PAGO, AMERICAN SAMOA 1011 MB									
Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb									
No. of observations										No. of observations										No. of observations										No. of observations										No. of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg									
Speed m.p.s										Speed m.p.s										Speed m.p.s										Speed m.p.s										Speed m.p.s									
SFC	30	5	-4.7	-5.6	05	2.4	30	8.47	4.3	1.0	08	.4	30	6	10.5	8.0	24	.8	30	403	6.9	3.9	02	.3	30	5	28.9	24.4	08	1.6	30	5	28.9	24.4	08	1.6	30	5	28.9	24.4	08	1.6							
1000	30	89	-3.2	-7.0	08	2.5	30	13.4	4.5	1.0	08	.4	30	10	10.8	7.2	28	1.3	30	540	7.6	3.8	09	1.1	30	98	26.8	23.1	08	1.9	30	98	26.8	23.1	08	1.9	30	98	26.8	23.1	08	1.9							
950	30	913	-4.7	-8.9	11	3.7	30	14.45	5.2	1.0	07	.7	30	10003	7.1	-1.5	28	3.5	30	980	7.1	1.1	15	2.30	1.022	20.3	17.7	02	1.9	30	1.022	20.3	17.7	02	1.9	30	1.022	20.3	17.7	02	1.9								
900	30	1360	-7.8	-13.8	14	3.9	30	14.45	5.2	1.0	07	.7	30	14741	4.6	-6.4	27	4.4	30	1449	5.6	-3.0	29	2.3	30	1.515	17.9	14.2	05	2.5	30	1.515	17.9	14.2	05	2.5	30	1.515	17.9	14.2	05	2.5							
850	30	1831	-9.7	-16.2	15	3.9	30	14.940	4.0	-6.0	26	4.3	30	14963	2.3	-10.6	25	5.1	30	14943	3.0	-5.3	28	4.9	2.033	15.6	10.0	35	2.3	30	2.033	15.6	10.0	35	2.3	30	2.033	15.6	10.0	35	2.3								
800	30	2327	-12.3	-19.3	16	4.3	30	24.43	1.3	-7.2	24	6.6	30	24482	-3.3	-14.1	25	4.7	30	2465	.9	-8.2	28	8.2	2.579	13.0	6.7	34	2.5	30	2.579	13.0	6.7	34	2.5	30	2.579	13.0	6.7	34	2.5								
750	30	2721	-15.3	-22.8	17	4.4	30	34.015	-1.5	-11.9	28	7.8	30	34015	-3.3	-17.5	26	4.9	30	34017	-2.3	-10.8	28	7.4	3.157	9.9	3.2	33	2.7	30	3.157	9.9	3.2	33	2.7	30	3.157	9.9	3.2	33	2.7								
700	30	3408	-18.6	-26.9	17	4.7	30	34002	-4.7	-15.7	28	9.9	30	34013	-2.3	-21.3	26	6.9	30	34002	-5.7	-15.4	28	10.2	3.770	6.4	.45	32	3.0	30	3.770	6.4	.45	32	3.0	30	3.770	6.4	.45	32	3.0								
650	30	4400	-22.0	-30.5	18	4.4	30	44227	-8.9	-19.7	27	11.1	30	44233	-10.5	-24.2	26	9.6	30	44225	-9.4	-19.6	28	13.0	4.423	2.7	.447	31	3.7	30	4.423	2.7	.447	31	3.7	30	4.423	2.7	.447	31	3.7								
600	30	4636	-25.9	-34.1	19	4.5	30	44895	-13.8	-24.8	27	11.6	30	44897	-14.9	-27.7	27	11.3	30	44892	-13.8	-25.8	28	14.0	5.122	-1.3	-10.3	30	4.4	30	5.122	-1.3	-10.3	30	4.4	30	5.122	-1.3	-10.3	30	4.4								
550	30	5320	-30.6	-37.8	19	4.3	30	5012	-19.1	-30.9	26	12.4	30	5011	-20.0	-32.7	26	12.7	30	5010	-18.7	-29.4	28	14.9	5.876	-5.3	-17.8	30	4.5	30	5.876	-5.3	-17.8	30	4.5	30	5.876	-5.3	-17.8	30	4.5								
500	30	6062	-35.2	-41.9	20	4.5	30	63387	-24.8	-36.1	26	13.4	30	63384	-25.8	-37.7	26	14.0	30	63386	-24.3	-34.5	27	15.8	6.696	-10.2	-23.1	21	5.1	30	6.696	-10.2	-23.1	21	5.1	30	6.696	-10.2	-23.1	21	5.1								
450	30	6873	-41.1	-42.6	20	4.9	30	7223	-31.2	-42.6	26	15.0	30	7223	-32.0	-42.7	26	14.8	30	7234	-30.6	-40.1	27	17.0	7.594	-16.0	-29.5	27	6.5	30	7.594	-16.0	-29.5	27	6.5	30	7.594	-16.0	-29.5	27	6.5								
400	30	7771	-47.3		21	4.7	30	8418	-48.5	-51.7	26	16.4	30	8418	-48.5	-51.7	26	16.4	30	8417	-47.3	-45.2	27	18.0	8.592	-12.9	-35.3	26	7.8	30	8.592	-12.9	-35.3	26	7.8	30	8.592	-12.9	-35.3	26	7.8								
350	30	8775	-52.7		22	5.4	30	92207	-46.8		26	18.7	30	92200	-45.9		27	21.3	30	9214	-45.7		27	19.9	9.697	-31.5	-43.4	26	10.2	30	9.697	-31.5	-43.4	26	10.2	30	9.697	-31.5	-43.4	26	10.2								
300	29	9947	-53.6		22	5.7	30	10398	-53.8		26	20.3	30	10392	-53.8		28	23.1	30	10408	-53.5		26	24.2	10.961	-61.7		25	12.4	30	10.961	-61.7		25	12.4	30	10.961	-61.7		25	12.4								
250	29	11393	-50.4		21	5.1	30	11815	-57.7		26	20.0	30	11808	-57.8		28	23.8	30	11827	-57.3		26	25.2	12.433	-54.0		25	15.0	30	12.433	-54.0		25	15.0	30	12.433	-54.0		25	15.0								
200	28	12657	-50.9		21	5.0	30	12659	-50.9		26	19.1	30	12652	-50.9		27	22.5	30	12676	-56.2		27	23.1	13.277	-60.7		25	16.6	30	13.277	-60.7		25	16.6	30	13.277	-60.7		25	16.6								
150	28	13626	-49.6		20	5.0	30	13658	-55.9		26	17.7	30	13631	-56.6		27	19.9	30	13659	-55.3		27	19.6	14.220	-67.6		25	17.4	30	14.220	-67.6		25	17.4	30	14.220	-67.6		25	17.4								
125	28	14471	-49.4		19	4.9	30	14798	-56.4		27	13.9	30	14786	-57.3		27	16.5	30	14820	-56.5		27	17.7	15.299	-74.3		25	14.1	30	15.299	-74.3		25	14.1	30	15.299	-74.3		25	14.1								
100	27	17389	-49.8		17	3.4	30	17608	-60.0		27	8.1	30	17587	-59.7		26	9.3	30	17636	-59.4		28	9.1	17.849	-75.8		22	2.2	30	17.849	-75.8		22	2.2	30	17.849	-75.8		22	2.2								
75	27	18202	-50.2		17	3.5	30	18442	-60.0		27	6.1	30	18423	-59.4		25	7.0	30	18471	-59.9		28	7.0	18.830	-72.3		09	3.8	30	18.830	-72.3		09	3.8	30	18.830	-72.3		09	3.8								
50	27	19268	-50.8		15	3.1	30	19403	-60.8		28	4.0	30	19388	-59.7		25	4.4	30	19432	-60.8		29	4.6	30	19543	-69.5		09	6.5	30	19543	-69.5		09	6.5	30	19543	-69.5		09	6.5							
25	20	20457	-51.1		13	3.7	30	20536	-61.0		28	1.9	30	20527	-60.0		24	3.4	30	20504	-60.1		29	3.5	30	20644	-64.4		09	7.8	30	20644	-64.4		09	7.8	30	20644	-64.4		09	7.8							
40	26	21909	-51.1		13	4.1	30	21929	-58.5		33	1.4	30	21921	-59.6		27	3.22	30	21952	-58.3		34	1.4	30	22024	-74.7		09	7.9	30	22024	-74.7		09	7.9	30	22024	-74.7		09	7.9							
25	23	23781	-51.5		11	5.0	30	23747	-50.6		34	1.1	29	23727	-57.6		35	1.0	29	23779	-56.3		04	1.9	29	23847	-54.2		09	6.6	30	23847	-54.2		09	6.6	30	23847	-54.2		09	6.6							
20	23	24964	-51.3		11	6.0	27	24493	-55.7		03	7	28	24885	-56.4		37	1.23	29	24946	-55.0		04	1.1	28	25022	-51.8		09	6.5	30	25022	-51.8		09	6.5	30	25022	-51.8		09	6.5							
15	21	26040	-51.1		11	7.7	27	26330	-53.8		01	6	26	26313	-54.3		33	1.9	21	26377	-53.5		02	1.1	28	26481	-48.2		09	8.1	30	26481	-48.2		09	8.1	30	26481	-48.2		09	8.1							
10	24	28293	-49.7		09	10.3	28	28192	-50.8		31	7	22	28172	-50.8		38	5.0	20	28240	-50.9		34	3	27	28392	-44.0		09	9.9	30	28392	-44.0		09	9.9	30	28392	-44.0		09	9.9							
5	10				14	30	876	-44.5		26	4.8	15	30	860	-45.1		27	11.0	15	30	899	-45.0		27	5.0	24	31145	-38.5		09	13.8	30	31145	-38.5		09	13.8	30	31145	-38.5		09	13.8						
0	7																																																



Average monthly values

APRIL 1978

SALT LAKE CITY, UT  
868 MB

SAN DIEGO, CA  
1000 MB

SAN JUAN, P. R.  
1015 MB

SAULT STE MARIE, MI  
991 MB

SPokane, WA  
#28 MB

Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction ten of deg	Resultant Wind Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction ten of deg	Resultant Wind Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction ten of deg	Resultant Wind Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction ten of deg	Resultant Wind Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction ten of deg	Resultant Wind Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction ten of deg	Resultant Wind Speed m.p.s				
SFC	30	1,288	6.4	2.0	15	2.1	30	1,4	11.9	9.2	30	1.4	30	1,4	23.7	21.3	1.1	30	221	-5.5	-5.5	30	720	4.0	1.5	1.7	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5		
1000	30	1,288	6.4	2.0	15	2.1	30	1,4	11.9	9.2	30	1.4	30	1,4	23.7	21.3	1.1	30	221	-5.5	-5.5	30	720	4.0	1.5	1.7	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5		
950	30	1,288	6.4	2.0	15	2.1	30	1,4	11.9	9.2	30	1.4	30	1,4	23.7	21.3	1.1	30	221	-5.5	-5.5	30	720	4.0	1.5	1.7	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5		
900	30	1,288	6.4	2.0	15	2.1	30	1,4	11.9	9.2	30	1.4	30	1,4	23.7	21.3	1.1	30	221	-5.5	-5.5	30	720	4.0	1.5	1.7	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5		
850	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
800	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
750	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
700	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
650	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
600	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
550	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
500	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
450	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
400	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
350	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
300	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
250	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
200	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
150	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
100	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
50	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5
0	30	1,457	7.0	-2.0	17	2.5	30	1,478	6.9	-2.7	28	4.3	30	1,329	14.2	9.8	11	4.3	1,434	-2.7	-11.6	32	4.3	1,435	3.3	-4.4	21	2.3	30	1,457	7.0	-2.0	17	2.5	30	1,457	7.0	-2.0	17	2.5

JAMPA BAY, FL  
1015 MB

TOPEKA, KS  
982 MB

TRUK, CAROLINE IS.  
1011 MB

TUCSON, AZ  
923 MB

VANDENBERG AFB, CA  
1005 MB

SFC	30	1,3	15.8	14.7	08	2.9	30	268	4.1	5.0	05	30	2	16.8	24.5	07	3.3	30	789	11.8	-1.5	14	2.7	30	100	9.4	8.6	04	1.4	30	144	18.7	15.0	12	2.0	30	158	17.5	9.7	14	2.4	30	1,045	15.0	5.0	18	1.3	30	1,520	12.6	-1.4	23	1.3	30	2,033	10.8	-6.2	25	2.2	30	2,509	8.4	-10.2	26	2.5	30	3,135	5.0	-13.8	26	4.8	30	3,738	2.4	-17.6	28	6.5	30	4,279	-1.6	-20.7	27	7.4	30	5,006	-5.8	-24.8	28	9.1	30	5,805	-11.1	-28.4	27	11.7	30	6,605	-16.8	-37.9	28	14.8	30	7,479	-23.1	-38.4	28	17.9	30	8,445	-30.7	-43.5	28	19.6	30	9,518	-38.9	-51.1	28	23.0	30	10,744	-47.8		28	28.3	30	12,193	-56.5		28	35.7	30	13,042	-57.9		28	36.6	30	14,005	-61.4		28	36.3	30	15,126	-65.5		28	28.3	30	16,466	-70.3		28	22.0	30	17,786	-71.6		28	13.0	30	18,576	-71.1		28	8.0	30	19,492	-71.5		28	3.6	30	20,597	-64.3		32	2.3	30	21,978	-59.7		04	2.4	30	23,797	-54.6		06	3.1	30	25,977	-47.1		08	2.5	30	28,431	-38.7		28	2.5	30	30,834	-43.7		27	7.1	30	32,109	-37.4		27	11.4
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VICTORIA, TX  
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WAKE IS., PACIFIC AREA  
1016 MB

MALLOPS ISLAND, VA NASA  
1015 MB

WASHINGTON DULLES INT, AP  
1005 MB

WAYCROSS, GA  
1012 MB

SFC	30	17.1	15.5	14	1.6	30	5	25.9	22.5	06	6.1	30	4	9.5	4.6	30	1.6	29	85	6.3	-5	30	1.0	30	44	13.0	11.1	25	1.8	30	110	18.1	15.9	15	2.6	30	154	17.5	12.0	17	6.6	30	1,009	16.2	4.4	18	7.1	30	1,490	14.0	-4.0	22	5.9	30	2,008	14.0	-4.0	22	5.9	30	2,550	11.3	-7.1	25	5.4	30	3,121	7.3	-11.0	26	6.0	30	3,726	3.0	-13.7	27	7.3	30	4,368	-1.5	-17.7	27	9.3	30	5,055	-5.9	-22.9	27	9.3	30	5,793	-11.7	-26.2	27	12.3	30	6,591	-17.6	-30.8	27	14.9	30	7,462	-23.9	-35.7	27	17.7	30	8,426	-31.0	-42.6	27	21.6	30	9,497	-39.5	-47.5	27	25.7	30	10,719	-49.1		27	1.4	30	12,153	-57.7		27	37.1	30	12,992	-59.2		26	36.2	30	13,950	-62.1		26	35.7	30	15,005	-65.8		26	28.7	30	16,049	-69.6		26	21.7	30	17,734	-71.1		26	12.8	30	18,524	-71.5		27	3.1	30	19,449	-69.1		27	3.8	30	20,553	-64.3		28	1.5	30	21,920	-58.8		28	2.1	30	23,730	-54.4		06	1.5	30	24,899	-53.3		35	1.3	30	26,344	-50.4		27	2.1	30	28,242	-45.0		27	6.9	30	30,995	-39.5		27	16.9	30	33,503			27	31.3
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## Average monthly values

APRIL 1978



## SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

APRIL 1978



## APRIL 1978

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date. . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley. . . . .	140	110	120	109	125	86	88	56	112	134	51	93	38	167	102	67	87	179	178	190	174	170	160	195	109	120	151	146	106	196	125	

## SOLAR ULTRA-VIOLET RADIATION DATA

Daily totals and monthly average ( $\pm 3900 \text{ Å}$ ) at Ames, Iowa.

# REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snow-fall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $9 \times ^\circ\text{C} + 32$   
 5  
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- ° Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data Service, NOAA, monthly publication STORM DATA.
- † No Storm Data Report received for this State.
- ◇ Report Incomplete.
- + Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion.

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( ) Clouds Present	DM Moderate Dust	HM Moderate Haze	KS Slight Smoke
* Values corresponding to true solar noon	DS Slight Dust	HS Slight Haze	M Moderate Haze-indeterminable
BD Blowing Dust	F Fog	I Intense Haze-indeterminable	N Sand
BM Blowing Sand	GF Ground Fog	K Smoke	S Slight Haze-indeterminable
D Dust	H Haze	KI Intense Smoke	
DI Intense Dust	HI Intense Haze	KM Moderate Smoke	

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

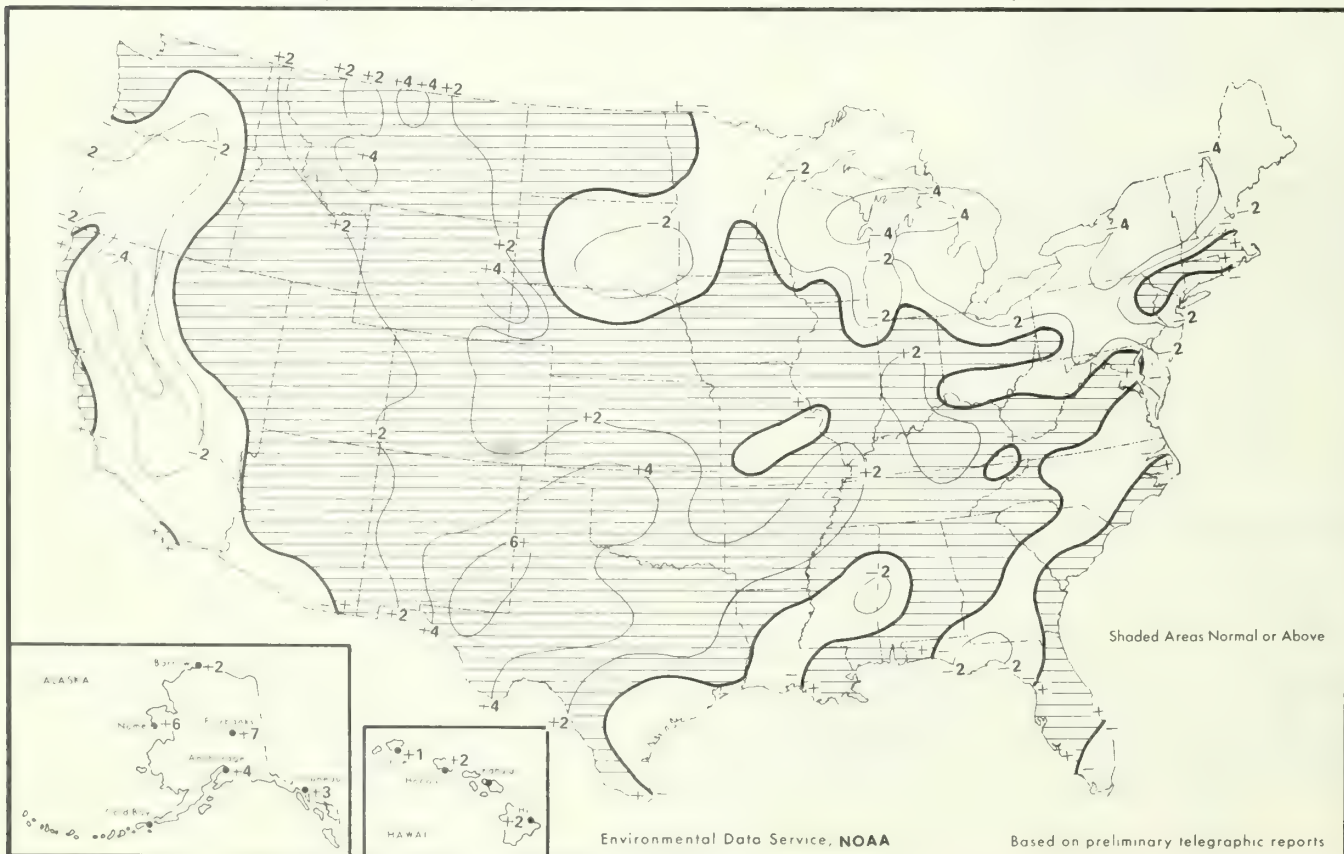
These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

SOLAR ULTRA-VIOLET RADIATION DATA: These data are from an U-V Eppley total ultra violet sensor and Speedomax H (Leeds Northrup) Recorder. This instrument has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), April.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), April 1978

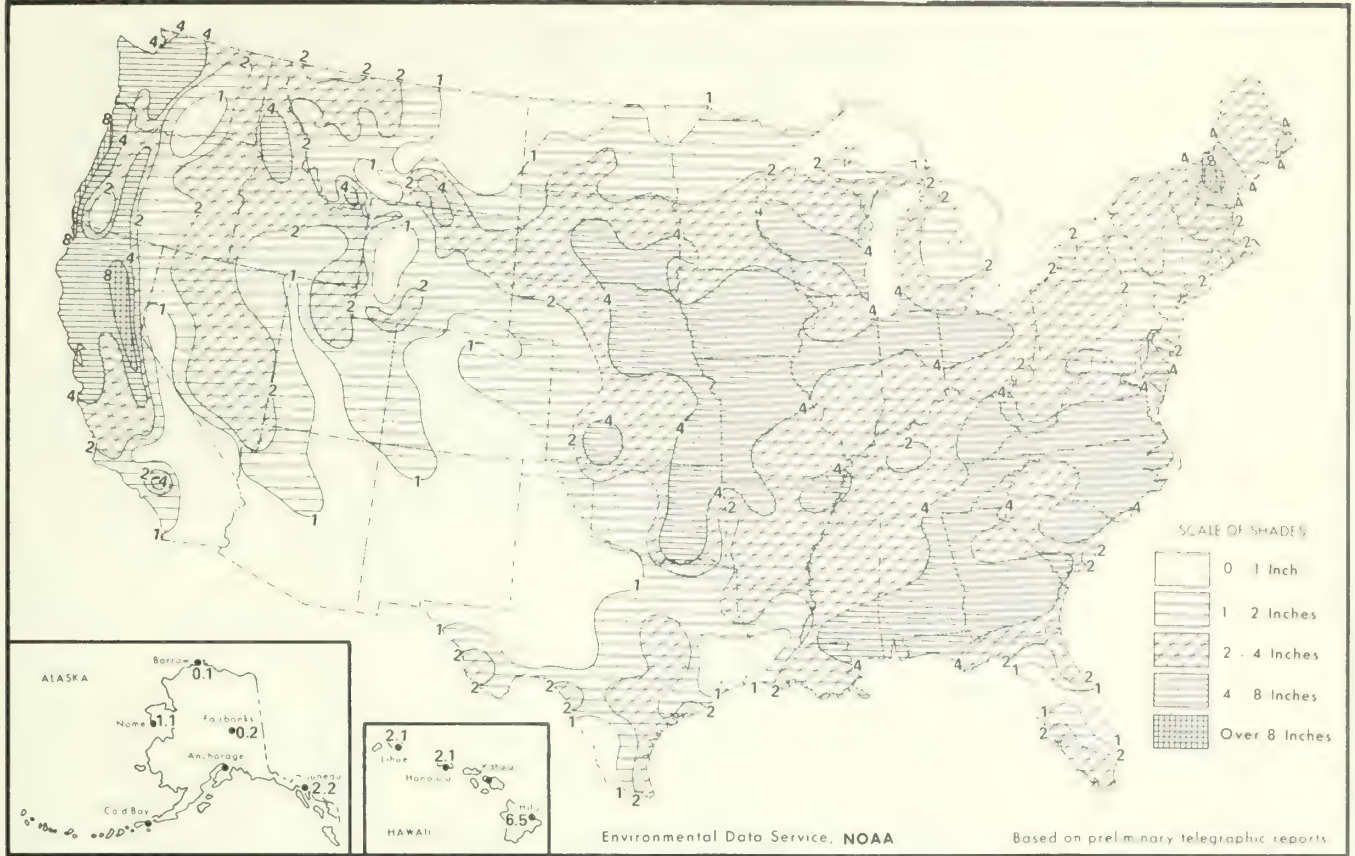


Environmental Data Service, NOAA

Based on preliminary telegraphic reports



Chart II. A. Total Precipitation (Inches), April 1978



B. Percentage of Normal Precipitation, April 1978

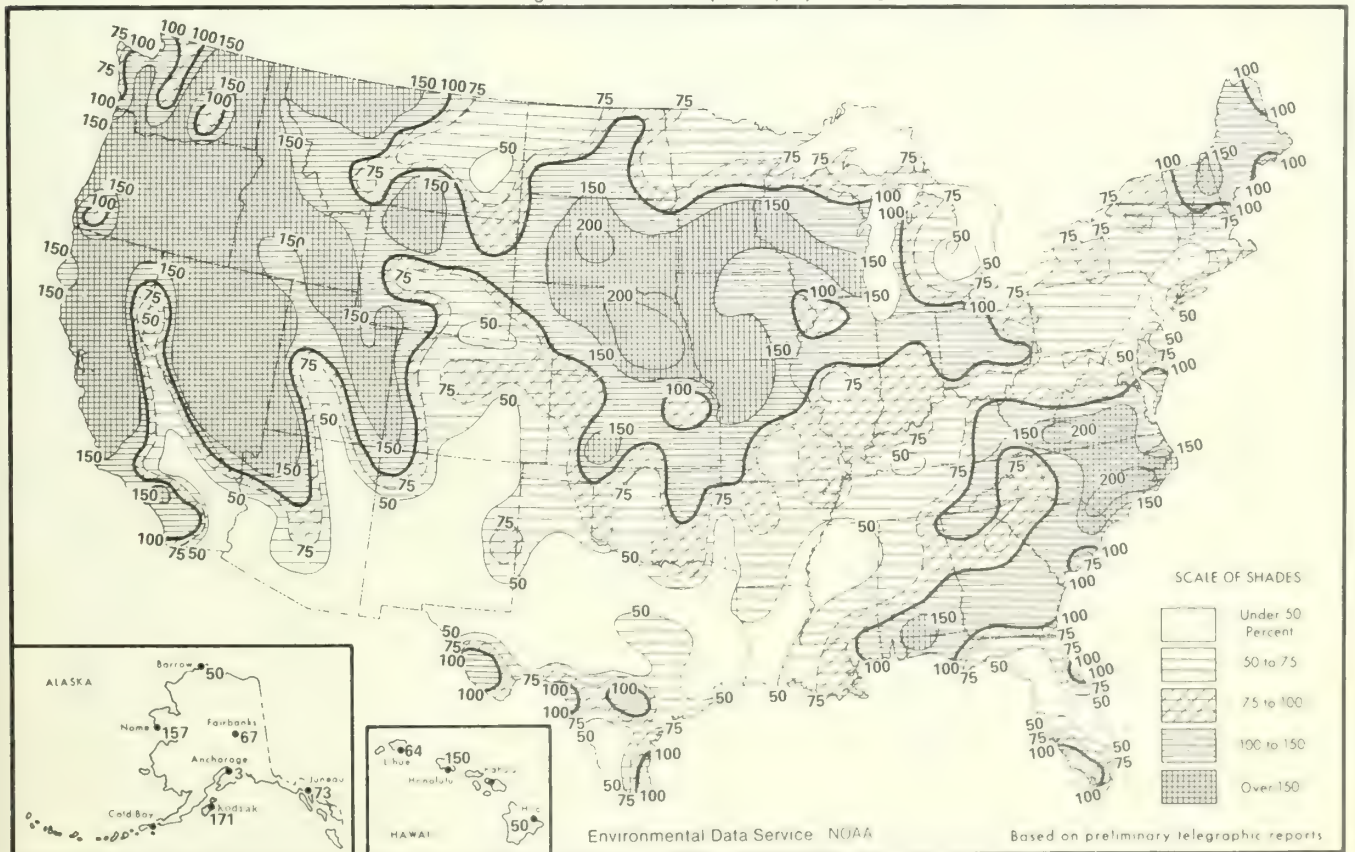


Chart III Tracks of Centers of Anticyclones at Sea Level, April 1978

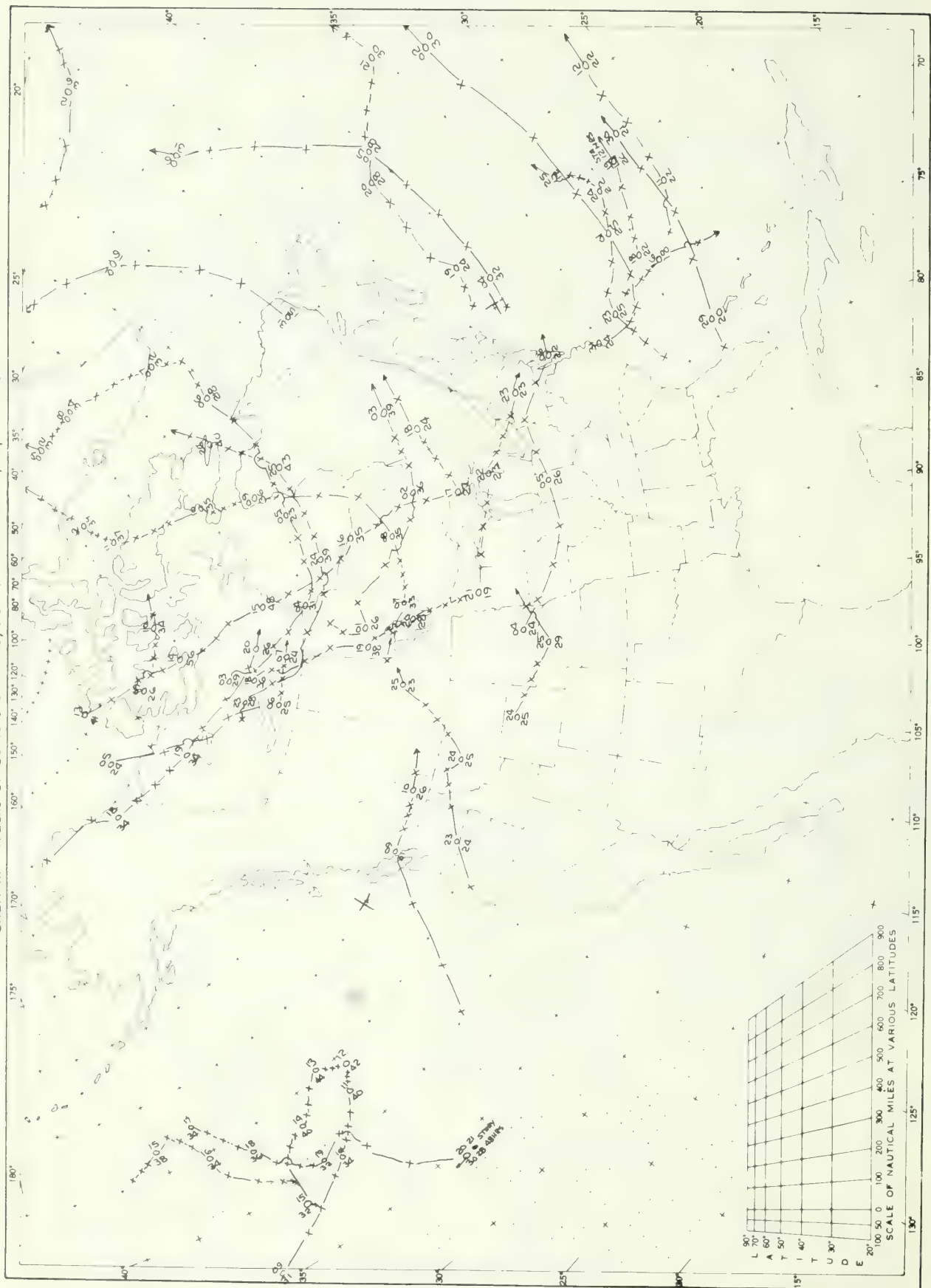
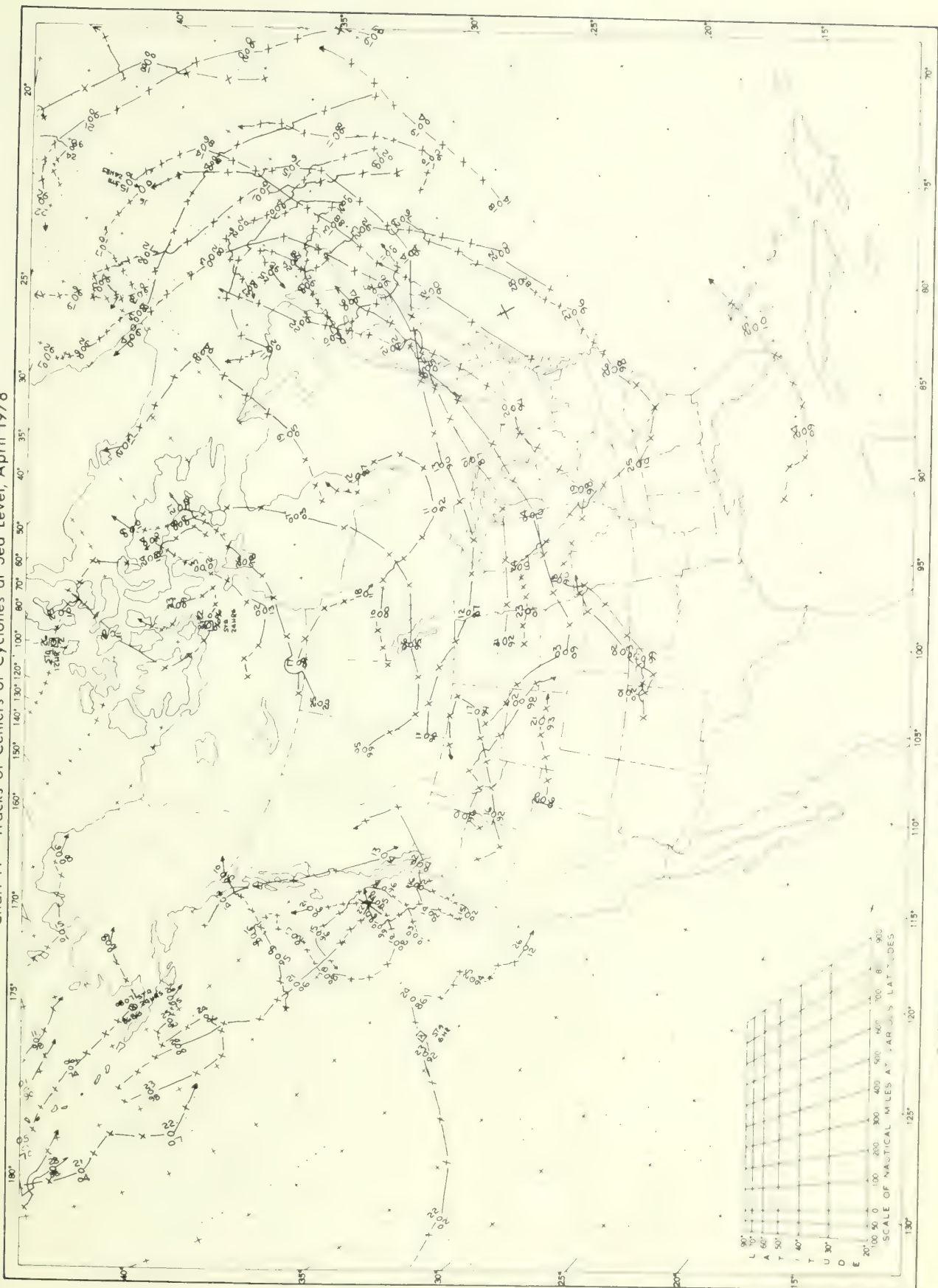




Chart IV Tracks of Cyclones at Sea Level, April 1978









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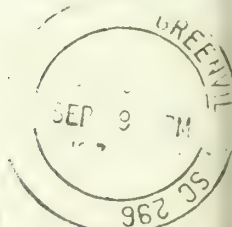


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214.121/5  
MAY 1978

VOLUME 29

NUMBER 5

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRA-  
TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH  
CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

MAY 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** The month will be remembered for its cool temperatures and above average rainfall in several of the Nation's important agricultural regions. Soggy fields and below normal readings delayed planting and slowed plant growth over much of the Corn Belt. Overall, the Plains, Atlantic Coastal States, and South got more rain than normal for this time of year. Seasonably, most of California received little or no moisture.

The first week of May was marked by a series of low pressure systems moving through the Deep South. The result--more than 10 inches of rain in some sections. Midweek rains dampened the Corn Belt and combined with temperatures 12 to 17° cooler than normal put farmers behind seeding schedules. Springtime snows whitened much of the Rockies.

A deepening upper air low pressure system started over the Dakotas and trekked eastward to the Atlantic Seaboard during the second week. A large segment of the Nation east of the Mississippi River was drenched by heavy rain when moisture spiraled northward from the Gulf. Cool temperatures cut a swath across the United States from the central portions of the Rockies and Plains, widening as it reached the East Coast.

The third week brought less rain to the Corn Belt, but previous downpours had saturated the land making for difficult planting. Heavy rain was spotty though parts of the Rockies, and the southern Plains experienced some flooding. While readings warmed in the southern Plains and Southwest, temperatures dipped as much as 6° below normal in the Mississippi and Ohio Valleys and the Deep South. Improved weather over the Midwest allowed for more plowing, but planting progress

persistently lagged.

The last full week delivered several slow-moving storm systems to the Plains and middle Mississippi Valley triggering some flooding and adding to saturated soils. With sharply rising temperatures east of the Rockies, the weather became unsettled and provided a checkered pattern over the Nation. Little or no precipitation was reported in the Southwest, the upper Rockies added some snow, and thunderstorms and tornadoes raked many portions, including a dozen twisters over the Great Plains on one day.

The last days of May meant severe weather over the central Plains and some record-breaking high readings in the northern tier of States from the Midwest to New England.

A sampling of May's precipitation counts in major agricultural States east of the Rockies revealed the reasons for the planting slowdown. Selected reporting stations throughout each State generally turned in higher than normal totals. Consequently, a majority of points in the Great Plains States, except in Texas, registered above normal rainfall.

For example, Oklahoma City reported more than 10 inches, nearly double the normal rainfall; Topeka reached almost 2 more inches than normal; and Amarillo, 3 inches above average.

Most Corn Belt surveys showed more rain than usual. Peoria's total was nearly 4 inches above normal; Burlington, IA, nearly 2 inches above, and Columbia, MO, chalked up 2 inches above average.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

MAY 1978

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Bankhead Lock and Dam	97	27	2 Stations	40	16-	Frisco City	16.12	Jacksonville	4.61
Alaska	Haines	82	23	Umiat	- 6	14-	Mac Leod Harbor	37.47	Tok	.00
Arizona	6 Stations	110	30-	2 Stations	12	18-	Palisade Ranger Station	2.58	16 Stations	.00
Arkansas	Brinkley	98	28	Calico Rock	31	3	Hamburg	16.12	Texarkana FAA AP	2.58
California	Mecca Fire Station	113	29	White Mountain 2	- 1	6	Sierra City	3.06	121 Stations	.00
Colorado	Lamar	95	23	Independence Pass 5 SW	0	3	Waterdale	8.09	Salida 3 W	.26
Connecticut	Hartford WSO AP	93	20	Falls Village	23	1	Round Pond	11.08	Stafford Springs 2	2.93
Delaware	2 Stations	88	20	Newark University Farm	28	1	Wilmington Porter Reservoir	8.23	Dover	5.60
Florida	Myakka River State Park	99	25	2 Stations	46	14-	Steinhatchee 6 ENE	14.76	Daytona Beach WSO AP	.56
Georgia	2 Stations	98	26	Clayton 1 SSW	33	16	Clayton 1 SSW	10.00	Augusta WSO AP	2.16
Hawaii	Kahului WSO AP 398	92	2	Mauna Loa Slope Obs, HI	34	29	Kukui 380, Maui	34.40	Mauna Kea Obs 111.2, HI	.64
Idaho	Bruneau	90	21	Tetonia Exp Station	15	4	Sandpoint Exp Station	5.48	Grand View 2 W	T
Illinois	Waterloo	95	27	Stockton	24	3	Medora	9.87	Chester	1.44
Indiana	Gary	95	28	Frankfort Disposal Plant	18	2	Williams	7.48	Goshen College	2.26
Iowa	Cedar Rapids FAA AP	96	26	Sibley	24	2	Keokuk Lock and Dam 19	9.07	Lake Park	1.29
Kansas	Ulysses	98	24	Brewster	26	3	Elgin	11.56	White City	2.18
Kentucky	3 Stations	95	26	Tomahawk 1 WSW	27	3-	Danville	8.30	Henderson 7 SSW	2.57
Louisiana	Monroe FAA AP	98	21-	2 Stations	42	5	Bienville 3 NE	15.38	Lake Arthur 10 SW	.08
Maine	Houlton FAA AP	96	29	Vanceboro 2	15	1	West Buxton 2 NNW	5.94	Fort Kent	1.02
Maryland	Baltimore WSO CI	93	20	Oakland 1 SE	19	2	Catoclin Mountain Park	8.71	Baltimore WSO CI	4.56
Massachusetts	Chester 2	95	30	Chester 2	20	4	2 Stations	7.25	Birch Hill Dam	2.00
Michigan	Traverse City FAA AP	95	28	Kenton U S Forest	14	1	Baraga 5 WNW	6.22	Coldwater State School	1.81
Minnesota	2 Stations	96	26-	Tower 3 S	14	1	Grand Meadow	7.54	Caribou 2 S	1.02
Mississippi	2 Stations	98	27	Batesville 2 SW	38	3	Tupelo 2 WNW	17.96	Centerville 4 ESE	4.67
Missouri	2 Stations	96	27-	2 Stations	23	2	Gregory Landing	8.65	Fredericktown	1.28
Montana	Broadus	95	15	3 Stations	18	26-	Lame Deer	12.44	Monida	.91
Nebraska	Franklin	94	30	Sidney 6 NNW	24	7	Wymore	7.39	Stockville	1.58
Nevada	Sunrise Manr Las Vegas	105	30	Reese River Ranger Station	15	31-	North Fork 7 NW	1.48	6 Stations	.00
New Hampshire	3 Stations	94	30-	Mount Washington	3	1	Mount Washington	8.13	Monroe 5 NNE	1.14
New Jersey	Chatsworth	92	20	Indian Mills 2 W	24	1	Belleplain State Forest	8.76	Freehold	5.54
New Mexico	Jal	105	15	Chama	9	7	Crossroads 2 NE	4.53	2 Stations	.10
New York	2 Stations	94	28-	Oneonta State University	12	1	Slide Mountain	10.77	Beaver Falls	1.11
North Carolina	Lumberton 6 NW	94	31	Transou	26	3	Lake Toxaway 2 SW	8.82	Clinton 2 NE	1.91
North Dakota	Coalton	92	23	3 Stations	28	13-	Watford City 14 S	6.78	Larimore	1.58
Ohio	Toledo Blade	99	30	2 Stations	20	1	Fredericktown 4 S	6.29	Stryker	1.57
Oklahoma	2 Stations	101	15	Boise City 2 E	27	4	Union City 1 SE	12.82	Boise City 2 E	3.07
Oregon	3 Stations	89	21	Pine Mtn Observatory	12	5	Laurel Mountain	10.14	Vale	.05
Pennsylvania	2 Stations	92	28-	Cleemont 4 NW	16	1	Mahanoy City 2 N	11.11	Erie WSO AP	2.76
Puerto Rico	Magueyes Island	97	3	Cerro Maravilla	56	14-	Pico Del Este	23.74	Ponce City	.00
Rhode Island	2 Stations	87	21	Kingston	29	1	Kingston	9.60	Providence WSO AP	5.27
South Carolina	2 Stations	96	31-	Ninety Nine Islands	33	16	Caesars Head	9.28	Beaufort 7 SW	1.75
South Dakota	Oral	94	16	Deerfield 4 NW	20	9	Custer	8.81	Kennebec	1.35
Tennessee	10 Stations	94	29-	Jazewell	28	3	Savannah	13.82	Knoxville Univ of TN	3.25
Texas	2 Stations	108	18-	Stratford	29	4	Shamrock	10.68	Angleton 2 W	.00
Utah	2 Stations	98	29-	Blowhard Mountain Radar	8	6-	Flaming Groge	2.75	2 Stations	.19
Vermont	2 Stations	93	29-	Mount Mansfield	15	1	Mount Mansfield	4.56	Gilman	1.41
Virginia	3 Stations	91	22-	Floyd 2 NE	24	2	2 Stations	9.31	Newport 2 NW	2.50
Virgin Islands	Cruz Bay	91	28	Cruz Bay	67	23	Cruz Bay	3.64	Annas Hope	1.13
Washington	2 Stations	89	21-	Rainier Paradise Rng Stn	20	23-	Cougar 6 E	9.92	White Swan Ranger Station	.12
West Virginia	Cairo 3 S	92	28	3 Stations	20	3-	Canaan Valley	7.43	2 Stations	2.94
Wisconsin	2 Stations	95	27-	Jump River 5 E	12	1	Chilton	7.46	Big Falls Hydro	1.82
Wyoming	Redbird	94	15	Darwin Ranch	10	12	Moorcroft	12.07	Sage 4 NNW	.55

CLIMATOLOGICAL DATA

METRIC UNITS

MAY 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32 °C or above	Min 0 °C or lower	Average dew point	Total	mm	Departure from normal	Greatest in 24 hours	25 mm or more	With thunderstorms	Total			mm	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Fastest mile (1.6 kilometers)	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
ALABAMA		189	991.9	1014.2	25.5	14.7	20.1	-1.3	31.1	26+	7.2	16+	0	0	15.0	75	214	124	35	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

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State and Station	Elevation (ground)	Pressure		Temperature						Precipitation					Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm. or more				Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed (1.6 kilometers)	Direction																																																																																																																																																																																																																																																																																																																																																																	
											Max 32.2 °C or above	Min. 0 °C or lower							No. of days	No. of days								No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of



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State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Station Q	Sea level	Average maximum		Average minimum		Average	Departure from normal		Highest	Date	Lowest	Date	Max 32.2 °C or above	Min. 0 °C or lower	No. of days	No. of days		Snow, ice pellets	Resultant speed	Resultant direction			Speed m/s	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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## HEATING DEGREE DAYS

(Base 65°F.)

MAY 1978

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				ALABAMA				ALABAMA				ALABAMA			
BIRMINGHAM	42	3457	2944	BOISE	329	5078	5734	NEBRASKA	205	6936	6365	BRISTOL	130	4994	4298
HUNTSVILLE	60	3928	3302	LEWISTON	472	5078	5384	GRAND ISLAND	193	7203	6196	CHATTANOOGA	60	3884	3505
MOBILE	0	2227	1684	POCAHONTAS	431	6092	6924	LINCOLN	187	7529	6944	KNOXVILLE	74	4035	3478
MONTGOMERY	2	2465	2269					NORFOLK	275	7447	6678	MEMPHIS	47	3481	3227
ALASKA				ILLINOIS				NORTH PLATTE	275	7447	6678	NASHVILLE	92	4456	3696
ANCHORAGE	491	9393	10499	CAIRO U	83	4603	3933	OMAHA	160	6794	6029	OAK RIDGE	110	4726	3944
ANNETTE	534	6828	6734	CHICAGO U HARE	464	7127	6452	OMAHA (NORTH)	185	7228	6568	TEXAS			
BARROW	1501	18218	19404	CHICAGO MIDWAY	472	7074	6101	SCOTTSDALE	286	6572	6483	ABILENE	34	2946	2610
BARTER ISLAND	1466	18072	19667	HOLINE	429	7272	6378	VALENTINE	254	8118	7227	SMARITLO	134	4346	4173
BETHEL	645	11524	12801	PEORIA	222	7109	6081	NEVADA				AUSTIN	7	2064	1737
BETTES	607	14283	15583	ROCKFORD	259	7846	6810	ELKO	398	5779	7293	ARROWVILLE	0	826	650
BIG DELTA	403	12298	13441	SPRINGFIELD	186	6593	5944	ELY	521	6770	7573	CORPUS CHRISTI	0	1222	930
COLD BAY	750	8625	9277					LAS VEGAS	16	1781	2601	DALLAS FT WORTH	41	3037	2382
FAIRBANKS	454	13331	14134	INDIANA				RENO	387	5186	5877	DEL RIO	0	1326	1529
GULKANA	671	13537	13605	EVANSVILLE	137	5506	4624	WINNEUCCA	335	5284	6480	EL PASO	22	2187	2678
HOMER	635	9126	9874	FORT WAYNE	424	7167	6184					GALVESTON	22	1636	1224
JUNEAU	525	8346	8652	INDIANAPOLIS	150	6106	5564	CONCORD	270	6022	7302	HOUSTON INTERCON	13	2154	1434
KING SALMON	605	12221	11158	SOUTH PELO	233	6587	6427	MT WASHINGTON OBS	861	13815	13269	LUMBOCK	64	3300	3543
KODIAK	650	8192	8401	IOWA								MINLAND	30	2533	2621
KOTZBURG	884	13780	15394	BURLINGTON	199	7093	6133	NEW JERSEY				PORT ARTHUR	0	1806	1918
MC GRATH	497	12863	14202	DES MOINES	181	7189	6684	ATLANTIC CITY	256	5468	4937	SAN ANGELO	21	2427	2240
NOME	765	12095	13746	DUPAGE	468	8233	7224	ATLANTIC CITY U	302	3224	4678	SAN ANTONIO	4	1928	1570
ST. PAUL ISLAND	803	9369	10394	SIOUX CITY	194	7679	6924	NEWARK	190	5553	5034	VICTORIA	1	1632	1227
TALKEETNA	531	10612	11402	WATERLOO	224	8637	7374	TRENTON U	189	5443	4947	WACO	19	2412	2058
VALAQUEET	651	12359	13333	KANSAS				NEW MEXICO				WICHITA FALLS	50	3530	2904
VALDEZ	575	8993	10131	CONCORDIA	162	6204	5601	ALBUQUERQUE	175	3928	4292	UTAH			
YAKUTAT	617	8671	9674	ODDGE CITY	169	5331	5024	CLAYTON	236	5024	5169	HILFORD	377	5493	6330
ARIZONA				GORDLAND	315	6485	6064	ROSWELL	39	2834	3697	SALT LAKE CITY	293	4696	5893
FLAGSTAFF	478	6072	7103	TOPEKA	156	5979	5230					VERMONT			
PHOENIX	0	715	1552	WICHITA	112	5154	4480	NEW YORK				AURLINGTON	225	8196	7813
TUCSON	24	1270	1752	KENTUCKY				ALBANY	245	7114	6849				
WINSLOW	175	4039	4719	COVINGTON	207	6305	5661	RINGHAMTON	248	7688	7210	VIRGINIA			
YUMA	0	604	1404	LEXINGTON	179	5498	4721	RUFFALO	282	7256	6469	LYNCHBURG	125	4782	4233
ARKANSAS				LOUISVILLE	142	5230	4640	NEW YORK U	179	5351	4848	NORFOLK	72	3789	3488
PORT SMITH	69	4078	3334	LOUISIANA				NEW YORK KENNEDY	193	5424	4909	RICHMOND	88	4336	3939
LITTLE ROCK	48	3623	3354	LAKE CHARLES	2	2020	1494	NEW YORK LA GUARDIA	220	7003	6673	ROANOKE	112	4906	4307
NO. LITTLE ROCK	74			NEW ORLEANS	0	1893	1468	ROCHESTER	252	7121	6632	WALLOPS ISLAND	196	4642	4233
CALIFORNIA				SHREVEPORT	30	3025	2167	SYRACUSE				WASHINGTON			
BAKERSFIELD	13	1182	2185	LOUISIANA				NORTH CAROLINA				ASHEVILLE	139	4624	4223
RISHOP	151	3844	4274	LAKE CHARLES	2	2020	1494	CASPE MATTERAS R	60	2987	2731	OLYMPIA	367	5326	5333
ALIVE CANYON	397	5324	5507	NEW ORLEANS	0	1893	1468	GREENSBORO	72	3596	3218	QUILLAYUTE	434	5413	5657
EUREKA U	357	3836	4388	SHREVEPORT	30	3025	2167	PALEICHO	131	4541	3825	SEATTLE	207	4400	4594
FRASNO	19	1867	2441	CARROLL	333	9407	9669	WILMINGTON	30	2895	2433	SEATTLE-TACOMA	333	4395	5018
LONG BEACH	12	856	1583	PORTLAND	377	7615	7392					SPokane	412	6788	6691
LOS ANGELES	66	911	1748	MARYLAND								STAMPEDE PASS R	758	8929	8926
LOS ANGELES U	24	828	1224	BALTIMORE	141	4990	4729	NORTH DAKOTA				WALLA WALLA U	207	4715	4786
MT SHASTA R	436	5673	5712	MASSACHUSETTS				RISMARCK	257	9481	8922	YAKIMA	311	5702	5913
NAKLAN	92	1879	2794	BLUE HILL OBS R	284	6705	6281	FARGO	209	9800	9176	WEST VIRGINIA			
REF ALIVE	24	2003	2698	WOPCESTER	288	7261	6787	WILLISTON	242	9700	9026	BECKLEY	216	6039	5576
SACRAMENTO	46	2239	2823	MICHIGAN								CHARLESTON	137	5252	4580
SANDREGR R	280	3974	4311	ALPENA	331	8580	8360	OHIO				ELKINS	265	6677	5912
SAN DIEGO	8	429	1453	DETROIT	217	6640	6205	AKRON	247	6885	6191	HUNTINGTON	104	5211	4613
SAN FRANCISCO	161	2424	2922	DETROIT METRO	235	7223	6389	CINCINNATI ABBE OB	178	5791	4837	PARKERSBURG U	168	5641	4809
SANTA MARIA	181	2046	2884	FLINT	238	7476	6974	CLEVELAND	218	6650	6114	WISCONSIN			
STOCKTON	10	2004	2791	GRAND RAPIDS	213	7371	6757	COLUMBUS	223	6484	5689	GREEN BAY	279	8566	8007
CONNECTICUT				LA SANS	244	7715	6956	DAYTON	205	6462	5628	LA CROSSE	209	8269	7578
BRIDGEPORT	265	5741	5437	MARQUETTE U	381	8260	8184	MANFIELD	249	6979	5794	MADISON	269	8291	7656
HARTFORD	220	6379	6325	MUSKOGEE	239	7361	6824	TOLEDO	253	7449	6349	MILWAUKEE	335	7750	7354
DELAWARE				SAULT STE MARIE	233	9396	8994	YOUNGSTOWN	273	6991	6384				
WILMINGTON	191	5720	4960	MINNESOTA				OKLAHOMA				WYOMING			
DIST. OF COLUMBIA				DULUTH	324	9690	9969	OKLAHOMA CITY	64	4130	3695	CASPER	471	7497	7408
WASHINGTON DULLES	123	5288	5005	INTERNATIONAL FALLS	212	10938	10370	TULSA	67	4275	3880	CHEYENNE	491	7171	7099
WASHINGTON NATIONAL	86	4304	4211	WINNAPOLIS	162	8465	8094	OREGON				LANDER	490	7491	7719
FLORIDA				ROCHESTER	256	8773	8149	ASTORIA	389	4747	5040	SHERIDAN	463	8233	7340
APPALEACHICOLA U	0	1942	1361	ST CLOUD	238	9208	8784	BURNS U	484	6626	7007				
DAYTONA BEACH	0	1172	897	MISSISSIPPI				EUGENE	375	4615	4608				
PORT MYERS	0	669	457	JACKSON	14	2971	2300	MEDFORD	262	4224	4839				
JACKSONVILLE	1	1807	1327	MERIDIAN	26	2941	2388	PENDLETON	322	5579	5170				
KEY WEST	0	223	64	MISSOURI				PORTLAND	317	4437	4664				
LAKELAND U	0	930	678	COLUMBIA REGIONAL	161	5792	5067	SALEM	316	4308	4719				
MIAMI	0	320	204	KANSAS CITY	172	6145	5342	SEXTON SUMMIT R	557	6188	6134				
ORLANDO	0	824	739	ST JOSEPH	159	6240	5429	PENNSYLVANIA							
PENSACOLA	0	1980	1578	ST LOUIS	158	5859	4746	ALLENTOWN	189	6040	5866				
TALLAHASSEE	0	2192	1568	SPRINGFIELD	134	5388	4506	BERIE	367	7351	6771				
TAMPA	0	1039	718	MONTANA				HARRISBURG	173	5776	5224				
WEST PALM BEACH	0	445	299	BILLINGS	357	7967	7134	PHILADELPHIA	161	5549	4865				
GEORGIA				GLASGOW	219	9897	8818	PITTSBURGH	269	6215	5964				
ATHENS	38	3331	2975	GREAT FALLS	421	8681	7494	PITTSBURGH U	203	5909	5268				
ATLANTA	57	3482	3095	HAVRE	266	8995	8341	SCRANTON	240	6735	6249				
AUGUSTA	33	2938	2547	HELENA	361	7721	7994	WILLIAMSPORT	190	6385	5958				
COLUMBUS	11	2649	2374	KALISPELL	497	8300	8309	RHODE ISLAND							
MACON	12	2643	2744	MILES CITY	472	8691	7779	BLOCK ISLAND	353	5900	5689				
ROME	38	3716	3347	MISSOULA	311	7483	7730	PROVIDENCE	238	6242	5938				
SAVANNAH	2	2277	1955					SOUTH CAROLINA							
								CHARLESTON	18	2404	2146				
								CHARLESTON U	9	2299	1904				
								COLUMBIA	37	3254	2594				
								GRNVILLE-SPRTNBGR	88	3609	3163				
								SOUTH DAKOTA							
								ABERDEEN	226	9412	8524				
								HURON	247	8791	7983				
								RAPID CITY	312	7844	7190				
								SIOUX FALLS	252	8641	7773				



# COOLING DEGREE DAYS

(Base 65°F.)

MAY 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM	151	215	297	HONOLOULU	353	1330	1033	GRAND ISLAND	47	57	59	CHARLESTON	242	301	343
MONTGOMERY	329	473	530	KAMULU	417	1644	1341	LINCOLN	46	58	81	CHARLESTON U	274	390	407
	339	384	384	LIMU	420	1596	1204	NORFOLK	56	60	48	COLUMBIA	172	229	319
ALASKA								NORTH PLATTE	21	22	36	GRANVILLE-SPRINGER	109	192	193
ANCHORAGE	0	0	0	IDAHO				OMAHA	47	79	96				
ANNETTE	0	0	0	BOISE	6	7	17	OMAHA (NORTH)	58	65	65	SOUTH DAKOTA			
BARROW	0	0	0	LEWISTOWN	0	0	14	SCOTTSDUFF	34	34	16	ABERDEEN	21	21	15
BARTER ISLAND	0	0	0	POCATELLO	0	0	7	VALENTINE	27	27	22	MURDO	21	21	15
BETHEL	0	0	0									RAPID CITY	9	9	15
BETTES	0	0	0	ILLINOIS				NEVADA				SIOUX FALLS	32	32	32
BIG DELTA	0	0	0	CAIRO U	404	262	227	ELKO	0	0	0				
COLD BAY	0	0	0	CHICAGO O HARE	60	60	34	FLY	0	0	0	TENNESSEE			
FAIRBANKS	0	0	0	CHICAGO MIDWAY	90	90	54	LAS VEGAS	277	334	372	BRISTOL	53	59	105
GULFANA	0	0	0	MOBILE	87	88	64	RENO	0	0	6	CHATTANOOGA	104	212	207
HOMER	0	0	0	PEORIA	81	74	64	WINNEMUCCA	5	5	11	KNOXVILLE	130	167	208
JUNEAU	0	0	0	ROCKFORD	75	73	41	NEW HAMPSHIRE				MEMPHIS	235	303	284
KING SALMON	0	0	0	SPRINGFIELD	107	116	84	CONCORD	46	46	4	NASHVILLE	152	203	201
KODIAK	0	0	0					MT WASHINGTON OBS	0	0	0	PAK RIDGE	49	92	103
KOTZEBUE	0	0	0	INDIANA								TEXAS			
MC GRATH	0	0	0	EVANSVILLE	125	141	142	NEW JERSEY				ABILENE	392	628	379
ROME	0	0	0	PORT WAYNE	60	60	44	ATLANTIC CITY	19	19	25	AMARILLO	108	147	119
ST. PAUL ISLAND	0	0	0	INDIANAPOLIS	110	114	74	ATLANTIC CITY U	8	9	13	AUSTIN	396	605	544
TALKEETNA	0	0	0	SOUTH RENO	70	70	44	NEWARK	59	59	47	ARROWVILLE	572	1079	1058
UNALAKET	0	0	0					TRENTON U	47	47	43	CORPUS CHRISTI	502	833	837
VALDEZ	0	0	0	IOWA								DALLAS FT WORTH	301	442	395
YAKUTAT	0	0	0	BURLINGTON	82	82	74	NEW MEXICO				DEL RIO	473	825	753
ARIZONA				DES MOINES	83	89	54	ALBUQUERQUE	41	45	73	EL PASO	295	401	285
FLAGSTAFF	0	0	0	DURHAM	52	52	34	CLAYTON	34	34	17	GALVESTON	373	505	594
PHOENIX	422	676	531	SIOUX CITY	49	54	64	ROSWELL	244	343	154	HOUSTON INTERCON	369	523	587
TUCSON	283	413	392	WATERLOO	79	79	37					LURBOCK	230	327	187
WINSLOW	39	41	61					NEW YORK				MIDLAND	200	437	324
YUMA	445	693	744	KANSAS				ALBANY	47	47	27	PORT ARTHUR	439	664	553
ARKANSAS				CONCORDIA	64	80	94	ALBUQUERQUE	48	58	13	SAN ANGELO	360	586	480
PORT SMITH	173	233	234	ODDGE CITY	77	113	98	RUFFALO	52	52	14	SAN ANTONIO	384	576	598
LITTLE ROCK	293	366	223	GOODLAND	16	19	27	NEW YORK U	77	77	54	VICTORIA	428	662	666
ND. LITTLE ROCK	199	295	249	TOPEKA	101	122	124	NEW YORK KENNEDY	37	37	27	WACO	383	587	464
CALIFORNIA				WICHITA	122	148	154	NEW YORK LA GUARDIA	44	44	46	WICHITA FALLS	281	436	352
BAKERSFIELD	273	313	248					ROCHESTER	77	77	22	UTAH			
BISHOP	25	25	77	KENTUCKY				SYRACUSE	49	49	18	MILFORD	0	0	10
BLUE CANYON	1	1	0	COVINGTON	63	67	94					SALT LAKE CITY	21	21	30
BUREKA U	0	0	0	LEXINGTON	69	88	114	NORTH CAROLINA							
FRESNO	179	188	166	LOUISVILLE	110	130	127	ASHVILLE	53	55	66	VERMONT			
LONG BEACH	138	205	64					CAPE HATTERAS R	48	81	124	BURLINGTON	79	79	15
LOS ANGELES	70	105	34	LOUISIANA				CHARLOTTE	132	173	180				
LOS ANGELES U	145	207	114	BATON ROUGE	471	526	524	GREENSBORO	80	91	144	VIRGINIA			
MT. SHASTA R	0	0	0	LAKE CHARLES	374	527	563	RALEIGH	120	152	150	LYNCHBURG	88	97	88
OAKLAND	45	47	0	NEW ORLEANS	380	627	564	WILMINGTON	187	255	276	NORFOLK	96	105	124
RED BLUFF	169	185	192	SHREVEPORT	303	395	424					RICHMOND	112	124	129
SACRAMENTO	25	25	0					NORTH DAKOTA				RUENKRE	79	86	93
SANDBERG R	25	25	0	MAINE				RHARCK	13	13	11	WALLOPS ISLAND	23	23	57
SAN DIEGO	115	165	51	CARIBOU	38	38	4	FARGO	31	31	11				
SAN FRANCISCO	24	24	0	PORTLAND	6	8	4	WILLISTON	19	19	7	WASHINGTON			
SAN FRANCISCO U	30	40	0									OLYMPIA	1	1	0
SANTA MARIA	12	12	0	MARYLAND				AKRON	54	54	36	QUILLAYUTE	0	0	0
STOCKTON	142	143	95	BALTIMORE	63	63	74	CINCINNATI ABBE OB	92	101	117	SEATTLE	2	2	6
COLORADO								CLEVELAND	43	53	37	SEATTLE-TACOMA	4	4	8
ALAMOSA	0	0	0	MASSACHUSETTS				COLUMBUS	49	59	55	SPokane	0	0	0
COLORADO SPRINGS	4	4	0	BLUE HILL OBS R	31	31	14	DAYTON	66	67	66	STAMPEDE PASS R	0	0	0
DENVER	12	12	0	BOSTON	40	40	24	DES MOINES	50	50	37	WALLA WALLA U	0	0	19
GRAND JUNCTION	25	25	47	WORCESTER	32	32	14	TOLEDO	48	58	37	YAKIMA	0	0	0
PUEBLO	27	30	39					YOUNGSTOWN	37	37	29				
CONNECTICUT				MICHIGAN				OKLAHOMA				WEST INDIES			
BRIDGEPORT	19	19	17	ALPENA	39	39	4	OKLAHOMA CITY	165	253	191	SAN JUAN P.R.	499	2249	1775
HARTFORD	71	71	14	DETROIT	80	80	34	TULSA	180	260	205	WEST VIRGINIA			
DELAWARE				DETROIT METRO	63	63	34					RECKLEY	33	38	24
WILMINGTON	48	48	48	FLINT	51	51	21	OREGON				CHARLESTON	88	104	118
				GRAND RAPIDS	62	62	24	ASTORIA	0	0	0	ELKINS	13	14	25
DIST. OF COLUMBIA				HOUGHTON LAKE	44	44	11	BURNS U	0	0	0	HUNTINGTON	85	103	120
WASHINGTON DULLES	84	84	59	LANSING	53	53	24	EUGENE	2	2	0	PARKERSBURG U	65	69	94
WASHINGTON NATIONAL	117	127	116	MARQUETTE U	25	25	4	MEMPHIS	4	4	11				
FLORIDA				MUSKEGON	29	29	14	PENDLETON	1	1	18	WISCONSIN			
APPALACHICOLA U	283	369	524	SAULT STE MARIE	27	27	4	PORTLAND	3	3	7	GREEN RAY	43	43	12
DAYTONA BEACH	388	696	654					SALEM	6	6	7	LA CROSSE	61	61	28
PORT MYERS	429	808	1000	MINNESOTA				SEXTON SUMMIT R	1	1	0	MADISON	96	96	18
JACKSONVILLE	311	478	526	DULUTH	17	17	4					WILMAJKE	40	40	13
KEY WEST	528	1213	1592	INTERNATIONAL FALLS	24	24	24	PACIFIC AREA							
LAKELAND U	422	790	861	MINNEAPOLIS	72	72	24	GUAM TAGUAC R	504	2065	1985	WYOMING			
MIAMI	449	1036	1181	ROCHESTER	39	39	14	JOHNSTON	454	2011	1857	CASPER	2	2	6
ORLANDO	342	476	564	ST CLOUD	39	39	14	KORD R	556	2546	2475	CHEYENNE	1	1	0
PENSACOLA	280	378	527	MISSISSIPPI				KWAJALEIN	507	2564	2504	LANDER	0	0	0
TALLAHASSEE	431	760	864	JACKSON	235	329	404	MAJURO	486	2449	2434	SHERIDAN	1	1	9
TAMPA	440	949	1052	MERIDIAN	193	238	394	PAGO PAGO	486	2409	2303				
WEST PALM BEACH								PONAPE R	516	2558	2372				
GEORGIA				MISSOURI				WAKE	537	2591	2444				
ATHENS	154	209	224	COLUMBIA REGIONAL	99	116	124	VAP R	538	2447	2429				
ATLANTA	144	186	193	ST JOSEPH	96	105	111								
AUGUSTA	177	224	309	ST LOUIS	120	144	154	PENNSYLVANIA							
COLUMBUS	250	344	360	SPRINGFIELD	104	110	127	ALLENTOWN	65	65	38				
MACON	244	340	414					FRIE	32	32	13				
ROME	157	185	184	MONTANA				HARRISBURG	69	69	69				
SAVANNAH	281	435	424	BILLINGS	12	12	4	PHILADELPHIA	57	57	67				
				GREAT FALLS	0	0	4	PITTSBURGH	49	49	46				
				HELENA	3	3	4	SCRANTON	52	52	30				
				KALISPELL	0	0	4	WILLIAMSPORT	63	63	43				
				MILES CITY	22	22	14								
				MISSOULA	0	0	4	RHODE ISLAND							
								BLACK ISLAND	0	0	4				
								PROVIDENCE	25	25	8				

# STORM SUMMARY

MAY 1978

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				⚡ ALL OTHER				
	NUMBER	DAYS	DEATHS	INJURIES	↑ DAMAGE	DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS									
Alabama	6	4		15	6					1		4	6		1															
Alaska												3																	4	
Arizona	*																												5	
Arkansas	10	3		4	5			4			5	4			2	5														
California	*																													
Colorado	6	3		1	5			3				4		2		3			5											
Connecticut	*																													
Delaware																														
Florida	25	10	3	101	7						5	5	5		1				5											
Georgia	7	2		20	7			4	5			5	5																	
Hawaii																														
Idaho												4																5	4	
Illinois	2	1		4	5							5	3		3													3	2	
Indiana	3	2			5							3	3																	
Iowa												5				4														
Kansas	10	7	3	3	6			6	7			6	5																	
Kentucky	3	1		17	6							5	4																	
Louisiana	7	2		9	5			5	5	1	8	5	4		1	5								6	2	8	5			
Maine												5			2	4														
Maryland & DC												4																3		
Massachusetts	*																													
Michigan	4	2		4				2				3	C		3	5										2	6	2		
Minnesota	4	3		3				4				4																5	5	
Mississippi	2	1		18	7			4	2		4	6	4															7	4	
Missouri	7	2		10	6			5	4		4	6		1	1	4												4	3	
Montana																														
Nebraska	16	5		5				6	7		1	6	4	1		4								1			7	2		
Nevada	*																													
New Hampshire	*																													
New Jersey	*																													
New Mexico																														
New York	3	1		5				6	7			3	3				5	?												
North Carolina	2	1		4							1	5	4		1	3														
North Dakota	9	3		3				3	3			3	3			3														
Ohio																														
Oklahoma	5	3		3	5		2	6	6			6	5		1	5								2		6	6			
Oregon																														
Pacific	*																													
Pennsylvania	1	1		3								3																		
Puerto Rico	*																													
Rhode Island	*																													
South Carolina	3	2		4	6			2	4	1		5	3																	
South Dakota	1	1		3								3	3																	
Tennessee												5																		
Texas	65	17	1	3			1	3	3	1	15	3	3	1	1	4	3							5	72	7	7			
Utah																														
Vermont												5																		
Virginia												4																		
Virgin Islands	*													1	1													4	5	
Washington	*																													
West Virginia	*																													
Wisconsin	2	1		3				3	3			3	3																	
Wyoming	11	7		5				3	3			3	3		5	C		3	7	C								7	C	



## Average monthly values

MAY 1970

ALBANY, NY 1005 MB										ALBUQUERQUE, NM 935 MB										AMARILLO, TX 888 MB										ANCHORAGE, AK 1007 MB										ANCHUTHE, AK 1114 MB									
Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.							
500	36	86	11.0	8.5	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
1000	26	126	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
950	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
900	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
850	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
800	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
750	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
700	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
650	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
600	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
550	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
500	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
450	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
400	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
350	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
300	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
250	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
200	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
150	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
100	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
80	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
60	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
40	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
20	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							
0	36	106	10.6	8.2	10	1.5	31	1519	7.7	-4.2	08	1.3	31	1495	11.9	8.5	19	1.5	31	49	8.8	2.1	18	8.4	31	37	6.6	4.9	13	2.0	23	36	8.8	1.5	17	2.2	29	359	6.4	2.9	13	2.0							

ATLANTA, GA 986 MB										BARROW, AK 1022 MB										BARTER ISLAND, AK 1020 MB										BETHEL, AK 1005 MB										BISMARCK, ND 953 MB									
Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s.							
500	31	246	15.6	14.2	31	4.8	28	18	-10.0	-12.5	08	4.3	30	15	-9.5	-11.2	08	4.6	31	39	4.7	2.1	33	1.3	31	503	9.0	5.8	13	1.9	1.3	31	558	17.2	11.1	27	1.8	28	17.7	11.1	27	1.8							
1000	31	246	15.6	14.2	31	4.8	28	18	-10.0	-12.5	08	4.3	30	15	-9.5	-11.2	08	4.6	31	39	4.7	2.1	33	1.3	31	503	9.0	5.8	13	1.9	1.3	31	558	17.2	11.1	27	1.8	28	17.7	11.1	27	1.8							
950	31	246	15.6	14.2	31	4.8	28	18	-10.0	-12.5	08	4.3	30	15	-9.5	-11.2	08	4.6	31	39	4.7	2.1	33	1.3	31	503	9.0	5.8	13	1.9	1.3	31	558	17.2	11.1	27	1.8	28	17.7	11.1	27	1.8							
900	31	246	15.6	14.2	31	4.8	28	18	-10.0	-12.5	08	4.3	30	15	-9.5	-11.2	08	4.6	31	39	4.7	2.1	33	1.3	31	503	9.0	5.8	13	1.9	1.3	31	558	17.2	11.1	27	1.8	28	17.7	11.1	27	1.8							
850	31	246	15.6	14.2	31	4.8	28	18	-10.0	-12.5	08	4.3	30	15	-9.5	-11.2	08	4.6	31	39	4.7	2.1	33	1.3	31	503	9.0	5.8	13	1.9	1.3	31	558	17.2	11.1	27	1.8	28	17.7	11.1	27	1.8							
800	31	246	15.6	14.2	31	4.8	28	18	-10.0	-12.5	08	4.3	30	15	-9.5	-11.2	08	4.6	31	39	4.7	2.1	33	1.3	31	503	9.0	5.8	13	1.9	1.3	31	558	17.2	11.1	27													



## Average monthly values

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ELY, NV 807 MB				EMPALME, MEXICO 1008 MB				* FAIRBANKS, AK 994 MB				FLINT, MI 986 MB				GLASGOW, MT 931 MB														
5FC	31	1 908	2.0	-5.7	19	1.2	31	12	18.3	11.0	95	1.1	26	135	7.4	-3.1	36	2.5	31	236	10.0	7.0	12	.6	31	696	7.7	5.9	03	1.3
1000							31	8	21.8	10.7	94	1.1	3	175	6.9	-1.1														
950							31	529	23.3	5.6	93	1.9	26	506	7.6	-4.0	06	2.9	31	567	12.3	5.0	16	.6						
900							31	997	20.5	2.2	91	1.7	26	949	4.9	-4.4	10	1.8	31	999	9.9	2.9	18	-3.31		978	10.4	3.5	33	2.0
850							31	1487	17.6	-9.5	20	1.0	26	1413	1.6	-5.4	16	1.8	31	1472	7.5	3.28		-3.31		1453	6.7	12	21	2.5
800	29	1 990	5.3	-4.3	26	.9	31	2002	14.9	-4.6	19	3.8	26	1898	-2.0	-7.0	19	1.0	31	1970	5.5	-3.9	33	-0.31		1952	5.6	-2.0	29	1.8
750	31	2 512	6.2	-6.5	32	1.9	31	2545	12.2	-9.3	22	5.1	26	2400	-6.0	-9.3	22	1.2	31	2496	3.1	-7.2	36	1.0	31	2477	2.1	-5.0	29	2.4
700	31	3 000	-9.1	-11.1	32	2.6	31	3000	-12.7	-12.7	23	6.4	26	3053	-13.9	-13.9	25	1.0	31	3052	-10	-11.2	31	1.1	31	3017	-1.1	-6.5	8	1.4
650	31	3 659	-8.9	-13.3	29	6.3	31	3759	9.5	-16.8	24	6.4	26	3753	-13.1	-18.0	25	1.2	31	3743	30	-14.3	30	2.1	31	3617	-4.6	-13.1	25	4.2
600	31	4 286	-8.3	-18.3	28	7.6	31	4287	-10	-17.9	24	7.7	26	4119	-17.0	-23.3	22	1.2	31	4273	-6.5	-18.3	29	3.2	31	4240	-9.5	-17.9	25	4.9
550	31	4 956	-12.7	-24.9	28	8.8	31	5071	-3.8	-22.4	25	8.8	26	4766	-21.4	-28.8	20	1.4	31	4948	-10.5	-23.6	29	4.2	31	4907	-13.6	-22.5	28	5.4
500	31	5 677	-17.3	-30.8	28	11.4	31	5815	-9.5	-26.8	20	10.0	26	5463	-26.1	-33.9	22	1.3	31	5674	-15.4	-28.6	29	5.2	31	5625	-18.7	-26.3	28	6.9
450	31	6 458	-22.9	-36.1	28	13.3	31	6620	-21.5	-31.4	20	14.2	25	6217	-31.2	-39.3	24	1.8	31	6462	-20.7	-33.7	29	5.7	31	6402	-24.2	-32.9	23	8.2
400	31	7 310	-28.1	-41.0	28	14.9	31	7409	-21.8	-36.6	18	13.4	25	7052	-37.1	-44.1	24	2.2	31	7322	-28.9	-39.3	29	6.2	31	7250	-30.8	-39.6	29	9.1
350	31	8 250	-34.2	-46.3	28	15.8	31	8471	-27.1	-42.6	16	16.9	24	7966	-43.7	-50.7	22	3.2	31	8178	-34.0	-45.2	29	7.4	31	8100	-36.3	-46.3	19	10.4
300	30	9 303	-44.1	-49.7	28	16.2	31	9552	-37.4	-49.3	23	20.6	23	8969	-51.3	-58.3	22	3.9	31	9333	-48.1	-58.2	29	7.9	31	9226	-46.4	-54.2	22	12.1
250	30	10 506	-51.5		28	18.9	31	10786	-44		26	25.5	23	10146	-51.3		23	30	31	10414	-49.9		28	10.9	31	10414	-49.9		22	13.1
200	31	11 932	-57.0		28	18.9	31	12 234	-56.3		26	30.5	22	11 587	-50.1		22	2.6	30	11 995	-55.7		28	14.3	31	11 841	-55.0		23	13.7
175	30	12 777	-56.7		27	16.5	31	13 076	-59.7		26	29.4	21	12 464	-46.8		22	2.0	30	12 843	-56.5		28	13.5	31	12 698	-52.5		24	11.9
150	31	13 756	-56.8		26	20.3	30	14 038	-61.9		26	24.3	21	13 477	-48.8		23	2.4	30	13 823	-55.6		29	12.5	31	13 691	-53.0		24	9.9
125	30	14 909	-57.6		27	12.8	27	13 163	-66.6		25	18.6	20	14 672	-46.2		23	1.8	30	14 983	-56.7		29	9.4	31	14 865	-54.1		24	6.9
100	30	16 310	-59.7		26	9.2	27	16 513	-68.1		25	11.9	19	16 135	-69.7		24	1.7	30	16 390	-59.1		29	7.1	31	16 292	-60.6		24	6.9
70	31	17 700	-60.9		25	4.7	26	17 848	-69.4		27	5.2	19	17 596	-69.5		24	1.7	30	17 788	-60.9		30	4.7	31	17 712	-56.2		24	4.0
60	30	18 531	-60.9		25	2.5	26	18 650	-67.1		27	2.2	19	18 472	-69.6		21	1.2	28	18 619	-60.6		31	3.7	31	18 560	-56.3		23	2.9
50	30	19 494	-59.9		23	.4	26	19 588	-63.5		10	1.7	19	19 482	-69.5		19	1.0	28	19 581	-59.8		34	2.6	30	19 537	-56.2		24	2.1
40	30	20 636	-56.8		12	1.3	26	20 719	-60.2		09	4.6	19	20 676	-69.6		10	.8	28	20 725	-58.2		02	2.4	30	20 697	-55.7		17	.5
30	24	22 041	-56.6		10	9.2	25	22 122	-55.9		09	4.6	19	22 139	-69.2		08	1.8	27	22 145	-69.2		06	2.6	30	22 123	-54.4		10	1.7
20	30	23 884	-53.7		2.4	2.4	26	23 975	-50.9		09	4.6	18	24 028	-69.9		09	3.9	26	23 984	-53.4		07	3.0	29	23 978	-54.0		10	1.7
10	27	25 000	-50.0		06	3.1	23	25 179	-58.8		09	4.1	15	25 252	-68.8		09	4.1	25	25 256	-62.0		08	1.5	29	25 256	-62.0		08	.9
5	25	26 510	-49.0		03	.8	19	26 660	-46.1		07	2.0	12	26 711	-66.8		09	4.6	25	26 657	-69.9		07	3.2	28	26 607	-50.1		09	5.9
15	22	28 412	-45.6		12	.6	11	28 588	-42.4		84	.9	11	28 653	-63.8		08	3.8	21	28 526	-66.0		07	1.7	28	28 505	-66.8		09	6.1
10	11	31 214	-38.6																					18	31 201	-40.5		09	8.1	



## Average monthly values

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Standard pressure surface mb.	GRAND JUNCTION, CO 850 MB					GREAT FALLS, MT 885 MB					GREEN RAY, WI 949 MB					GREENSBORO, NC 963 MB					GUALAQUIPE IS., MEXICO 1012 MB										
	No. of observations	Dynamic height meters	Resultant Wind		No. of observations	Dynamic height meters	Resultant Wind		No. of observations	Dynamic height meters	Resultant Wind		No. of observations	Dynamic height meters	Resultant Wind		No. of observations	Dynamic height meters	Resultant Wind												
			Temperature °C	Dew Point °C			Direction tens of deg.	Speed m.p.s.			Temperature °C	Dew Point °C			Direction tens of deg.	Speed m.p.s.			Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.					
500	31	1472	9.8	-10.0	12	1.8	31	1418	6.3	1.3	24	2.4	31	410	9.2	5.1	35	7	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
1000	31	1472	9.8	-10.0	12	1.8	31	1418	6.3	1.3	24	2.4	31	410	9.2	5.1	35	7	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
950	31	1472	9.8	-10.0	12	1.8	31	1418	6.3	1.3	24	2.4	31	410	9.2	5.1	35	7	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
900	31	1472	9.8	-10.0	12	1.8	31	1418	6.3	1.3	24	2.4	31	410	9.2	5.1	35	7	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
850	15	1510	11.2	-11.1	12	2.3	31	1463	7.0	-7.2	26	4.3	31	1465	7.5	-7.4	26	2.8	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
800	31	1473	10.0	-9.3	12	2.1	31	1469	3.4	-3.1	28	4.4	31	1462	5.0	-3.2	28	3.5	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
750	31	1500	10.0	-9.0	12	2.1	31	1469	3.4	-3.1	28	4.4	31	1462	5.0	-3.2	28	3.5	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
700	31	1508	2.3	-8.8	12	4.6	31	1463	-3.3	-3.8	26	4.0	31	1462	-2	-12.8	26	1.8	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
650	31	1502	-2.3	-11.7	12	6.2	31	1464	-7.2	-12.5	26	5.4	31	1462	-3.4	-10.4	28	2.1	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
600	31	1492	-7.1	-15.8	12	7.8	31	1423	-11.2	-17.2	25	5.9	31	1420	-7.1	-20.7	28	2.8	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
550	31	1496	-11.7	-21.9	12	9.4	31	1485	-15.5	-24.8	24	6.9	31	1434	-11.3	-25.2	27	3.5	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
500	31	1508	-17.0	-28.1	12	10.8	31	1508	-23.4	-29.9	24	8.8	31	1508	-15.7	-31.2	27	3.7	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
450	31	1509	-22.5	-35.1	12	12.1	31	1508	-28.2	-36.4	24	9.3	31	1508	-19.7	-35.0	27	5.2	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
400	31	1523	-28.7	-40.4	15	15.0	31	1722	-32.5	-41.8	23	9.8	31	1730	-27.1	-39.7	27	5.6	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
350	31	1529	-35.4	-45.4	16	15.3	31	1849	-39.8	-45.1	23	10.8	31	1826	-34.2	-45.1	26	7.1	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
300	31	1531	-43.2	-52.0	15	16.6	31	1918	-46.6	-52.3	23	11.8	31	1934	-42.3	-50.6	27	8.1	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
250	31	1536	-50.5	-55	15	16.7	31	1937	-52.7	-58	23	11.8	31	1925	-50.3	-57	27	10.2	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
200	31	1540	-55.1	-55	15	16.7	31	1941	-58.0	-58	24	11.8	31	1957	-56.7	-57	27	10.2	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
175	31	1525	-55.1	-55	15	16.6	31	1920	-52.9	-58	24	11.8	31	1953	-56.7	-57	27	10.2	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
150	30	1507	-55.9	-55	15	15.6	30	1866	-52.4	-58	24	9.5	31	1878	-55.3	-58	28	11.3	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
125	30	1495	-57.1	-55	15	14.0	30	1884	-52.8	-58	25	8.0	31	1495	-56.4	-58	27	9.8	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
100	30	1630	-59.3	-57	24	9.1	30	1627	-55.1	-58	24	5.6	31	1635	-58.4	-57	27	8.3	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
75	27	1719	-61.2	-52	23	26	27	1768	-56.2	-58	26	3.3	31	1733	-59.9	-58	28	4.9	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
50	27	1800	-60.0	-50	22	31	27	1856	-56.1	-58	22	2.4	31	1857	-59.9	-58	28	3.1	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
25	27	1955	-59.0	-50	19	21.1	24	1953	-56.4	-58	22	1.4	31	1952	-59.0	-58	31	1.8	31	275	12.6	10.0	35	3	27	31	13.5	11.0	33	7.2	
0	27	2070	-58.5	-55	15	14.3	23	2063	-55.7	-57	10	1.1	31	2069	-57.6	-58	33	1.4	30	2070	-59.5	-57	6	2.2	27	2060	-61.2	-50	1.8	1.8	
40	26	22120	-55.6	-58	08	2.1	22	22127	-54.1	-59	09	2.0	31	22114	-55.9	-59	07	2.3	29	222116	-59.5	-57	07	3.1	24	22005	-57.0	-58	3.3	3.3	
30	23	23968	-53.5	-55	09	3.3	22	23979	-51.9	-59	09	3.4	28	23940	-53.5	-57	07	3.8	28	23965	-52.6	-56	09	3.1	23	23894	-52.1	-58	5.6	5.6	
20	23	25514	-52.0	-53	09	2.7	31	25518	-51.9	-59	09	4.7	28	25518	-54.9	-59	08	4.1	28	255148	-50.7	-56	09	2.8	23	25384	-50.4	-58	5.6	5.6	
10	23	26005	-48.8	-51	05	11.6	31	26006	-49.6	-58	05	5.6	25	26052	-49.9	-58	09	5.3	25	26052	-47.7	-56	09	2.0	19	26057	-47.8	-58	2.9	2.9	
15	19	28152	-45.5	-45	04	1.0	19	28175	-40.3	-43	09	5.6	25	28047	-40.4	-43	08	4.7	20	28054	-44.5	-45	35	0	1	28046	-45.2	-45	0	0	
10	18	31252	-41.9	-41	8	31	31245	-41.1	-41	14	31	31227	-40.6	-41	8	31	31200	-40.8	-41	8	31	31200	-40.8	-41	8	31	31200	-40.8	-41	8	8

* GUAM, MARIANA IS.										* HILO, HI										* HUNTINGTON, WV										* INTERNATIONAL FALLS, MN										* ISLE DEL CISNE									
999 MB										1016 MB										985 MB										971 MB										1010 MB									
SFC	31	111	25.7	23.4	09	3.7	31	10	21.5	19.6	25	1.4	31	240	11.9	8.1	23	.5	31	339	7.7	2.1	47	.9	31	10	27.1	23.8	12	5.1																			
1000							31	150	21.5	14.2	21	1.3													31	95	20.8	24.3	12	6.1																			
950	31	550	23.4	20.8	09	7.8	31	594	18.7	15.3	13	2.9	31	532	14.1	7.2	25	2.4	31	543	10.5	3.2	16	1.7	31	548	22.3	21.4	12	8.1																			
900	31	14022	21.1	17.5	16	8.3	31	10057	15.8	13.3	12	3.7	31	1008	12.0	5.1	26	4.3	31	993	9.7	.9	18	.5	31	10020	20.6	10.7	13	8.5																			
850	31	1516	18.5	13.9	16	7.1	31	1341	12.8	10.3	11	3.1	31	1444	9.1	2.4	27	5.5	31	1406	7.4	-1.2	28	-1.3	31	1512	10.0	12.7	13	7.2																			
800	31	2103	16.2	9.1	16	6.1	31	2094	10.3	5.8	11	3.3	31	1985	6.7	-1.4	27	6.2	31	1764	5.1	-6.1	32	-6.0	31	22031	15.5	8.2	13	6.2																			
750	31	2582	13.5	3.9	9	5.7	31	2586	7.3	-2.0	10	3.3	31	2575	3.9	-4.9	27	6.0	31	2748	2.2	-3.0	27	-1.2	31	2748	2.2	-3.0	27	1.3																			
700	31	3015	10.7	-1.5	10	5.2	31	3156	7.3	-1.0	11	3.1	31	3071	1.2	-9.8	27	6.1	31	3042	1.1	-13.0	28	-1.3	31	3153	9.7	-1.3	12	3.6																			
650	31	3775	7.1	-5.1	10	4.5	31	3762	4.0	-12.6	17	1.6	31	3604	-1.7	-15.8	28	7.0	31	3635	-4.2	-15.1	29	-1.8	31	3765	6.2	-5.6	11	3.6																			
600	31	4429	3.6	-11.0	09	3.8	31	4408	.5	-10.1	23	1.4	31	4298	-4.9	-18.3	27	7.4	31	4257	-7.9	-18.1	27	2.8	31	4418	2.6	-9.6	12	2.7																			
550	31	5131	-2.2	-14.2	09	3.6	31	5101	-3.8	-21.0	24	2.3	31	4977	-9.0	-24.0	27	8.7	31	4928	-12.0	-22.3	26	8.6	31	5117	-1.4	-13.8	09	1.9																			
500	31	5887	-7.1	-21.5	04	3.1	31	5867	-8.4	-25.5	25	3.6	31	5708	-13.6	-28.7	28	10.5	31	5651	-16.4	-37.7	27	4.3	31	5871	-5.3	-19.3	06	1.5																			
450	31	6709	-9.4	-26.4	08	3.1	31	6656	-13.8	-30.5	25	3.0	31	6502	-18.8	-32.8	28	12.5	31	6435	-21.9	-37.7	26	5.9	31	6690	-1.0	-24.6	85	1.2																			
400	31	7606	-13.5	-32.4	04	2.0	31	7529	-20.7	-33.0	26	7.1	31	7311	-25.0	-38.4	28	13.5	31	7171	-27.2	-38.7	26	5.8	31	7609	-1.6	-30.2	82	2.6																			
350	31	8507	-17.5	-35.4	04	3.1	31	8517	-25.5	-48.3	25	1.1	31	8325	-30.7	-48.7	28	15.7	31	8242	-34.0	-48.7	26	6.6	31	8578	-6.8	-30.3	82	2.6																			
300	31	9272	-30.3	-45.0	34	4.5	31	9065	-35.7	-48.2	26	4.5	31	9397	-39.8	-48.7	28	18.8	30	9295	-43.6	-49.0	26	11.0	30	9081	-32.3	-43.7	29	5.6																			
250	31	10993	-40.1	-53.3	29	8.5	31	10847	-43.6		26	18.8	31	10622	-47.2		28	20.6	30	10497	-52.7		26	12.5	30	10443	-42.5		29	7.8																			
200	31	12471	-52.2		24	9.9	31	12429	-56.7		26	23.7	31	12071	-55.0		29	22.9	30	11919	-57.1		26	14.8	30	12409	-54.2		28	10.0																			
175	30	13328	-59.2		24	10.4	31	13133	-62.1		27	26.7	30	12927	-67.4		29	20.9	30	12766	-66.4		26	12.8	30	13282	-61.1		28	10.9																			
150	30	14276	-66.2		20	8.8	31	14075	-68.5		27	25.8	30	13491	-73.3		28	18.8	30	13769	-74.6		26	12.4	30	14193	-68.6		28	10.1																			
125	30	15359	-74.8		20	6.7	31	14916	-70.2		27	22.1	30	15152	-76.0		29	13.1	30	14916	-75.1		26	10.2	30	15700	-70.8		29	8.7																			
100	30	16639	-78.0		23	2.5	29	16487	-71.7		26	14.3	30	16444	-81.3		26	14.3	30	16336	-80.7		26	9.0	30	16653	-78.0		31	9.5																			
75	24	17900	-79.5		03	4.0	26	17812	-70.2		24	7.9	26	17876	-72.0		31	5.1	30	17747	-77.7		26	5.8	30	17833	-76.1		01	2.0																			
50	21	18667	-65.8		06	4.9	26	18608	-69.2		23	3.2	30	18693	-61.7		33	3.7	30	18590	-57.3		26	4.1	26	18612	-71.7		07	2.9																			
25	60	19574	-69.0		04	5.1	26	19531	-67.6		10	2.5	29	19606	-60.9		01	2.7	30	19566	-56.9		26	2.3	30	19533	-60.8		09	4.6																			
0	21	20679	-63.7		09	4.5	26	20638	-64.2		10	6.5	29	20745	-49.2		04	2.4	30	20724	-55.7		35	.4	29	20651	-61.8		09	5.2																			
25	41	22262	-59.2		03	3.8	25	22017	-54.5		09	9.0	29	22132	-56.5		04	3.1	30	22150	-54.3		07	1.7	28	22250	-59.1		08	5.5																			
20	21	23897	-56.2		04	5.5	26	23845	-53.3		09	8.2	29	23952	-52.9		07	2.7	30	23938	-51.7		07	2.8	29	23904	-54.6		09	5.0																			
15	21	25084			04	7.0	24	25027	-50.1		09	8.4	27	25183	-51.7		08	4.5	29	25175	-51.7		08	4.5	27	25101	-44.6		09	9.6																			
10	20	26550	-47.5		04	10.9	23	26495	-46.8		09	10.0	24	26588	-48.1		05	1.3	28	26427	-44.5		08	5.8	25	26593	-44.2		09	10.7																			
5	15	27835	-44.8		09	17.3	23	28414	-43.9		09	10.1	16	28385	-45.6		03	1.5	25	28426	-46.3		09	5.9	23	28434	-40.6		08	13.8																			
0	11	31189	-40.5		09	25.4	13	31170	-40.8		09	12.2	6	31325	-39.6								09	6.5	21	31322	-36.2		10	19.7																			
7																																																	

JACKSON, MS										JOHN F. KENNEDY INT. AP NY										JOHNSTON IS., PACIFIC AREA										KEY WEST, FL										KING SALMON, AK									
1002 MB										1015 MB										1014 MB										1014 MB										1000 MB									
5FC	30	100	17.9	16.4	14	1.0	31	5	12.3	8.1	02	1.5	31	3	25.4	22.1	07	7.0	31	3	25.6	23.1	14	2.1	31	15	4.2	.9	11	1.9																			
1000	20	137	19.7	17.2	12	1.0	31	133	12.0	7.4	52	1.5	31	129	24.1	21.2	07	7.2	31	127	25.1	22.0	14	2.0	22	104	6.4	1.2	15	2.2																			
550	30	130	19.8	18.1	22	2.8	31	562	10.7	7.5	01	1.4	31	20	20.0	18.8	08	6.3	31	21	21.2	19.5	14	4.1	31	3	3.0	.1	11	4.0																			
750	30	120	19.4	17.4	14	1.0	31	101	11.4	7.7	2.8	31	1	104.3	15.2	14.8	1	120.6																															
850	30	112	15.2	15.8	24	6.6	31	1484	6.9			2.1	1.4	1.31	14.7	11.8	09	6.8	31	1437	16.0	13.4	17	2.6	31	1377	-1.7	-5.9	11	5.9																			
950	30	72624	12.3	1.6	25	6.6	31	1981	4.6	-3.0	23	2.9	31	2034	12.8	5.4	09	6.8	31	2252	14.4	6.2	18	1.9	31	1857	-1.0	-7.7	11	4.9																			
750	30	22562	9.3	-2.9	24	7.9	31	2205	2.0	-7.8	25	4.1	31	22594	11.4	-1.0	09	2.7	31	22594	11.7	-1.1	16	2.0	31	22362	-7.8	-12.0	11	4.4																			
750	30	3131	5.9	-2.5	26	9.2	31	30059		-10.7	25	5.6	31	3157	8.3	-5.3	09	1.1	31	3167	8.1	-4.3	22	2.6	31	2896	-11.3	-15.7	10	3.1																			
750	30	375	2.1	-10.5	27	10.1	31	864	-3.5	-15.1	26	5.8	31	706	1.1	-9.4	06	4.1	31	1	-10.5	25	3.4	31	362	-1.5	-21.1	1.0	5.0																				
750	30	4376	1.0	-11.1	27	10.1	31	42727		-19.9	27	6.4	31	4445	1.3	-13.9	30	4.1	31	4425	1	-12.6	26	4.1	31	4262	-18.4	-24.8	09	5.1																			
550	30	56062	-0.2	-20.0	27	14.4	31	4951	-10.8	-25.4	27	7.5	31	5110	-2.9	-20.4	29	2.2	31	5119	-3.0	-18.6	28	5.7	31	4726	-22.7	-30.1	10	5.0																			
550	30	5802	-10.5	-25.7	27	15.8	31	5678	-15.6	-30.0	27	9.0	31	5889	-11.0	-25.4	29	3.1	31	5868	-7.5	-23.1	29	6.6	31	5398	-27.3	-33.4	10	5.7																			
450	30	60606	-15.4	-31.0	27	17.1	31	60464	-21.0	-39.4	27	10.6	30	6073	-17.9	-30.0	29	4.4	31	6058	-12.8	-27.6	29	7.7	31	6150	-32.3	-40.3	10	5.3																			
450	30	7484	-21.1	-37.7	27	18.0	30	7324	-27.4	-45.8	27	12.2	30	7364	-18.2	-35.6	29	6.4	31	7359	-19.2	-36.1	29	9.2	31	7400	-38.6	-43.6	10	4.6																			
450	30	8457	-25.9	-43.1	27	19.0	30	8457	-30.0	-48.0	27	12.7	30	8456	-19.3	-36.3	29	6.4	31	8456	-19.3	-36.3	29	12.0	31	8456	-38.6	-43.6	10	4.6																			
350	30	9538	-27.0	-44.2	27	20.3	27	9337	-32.5	-51.7	27	14.1	30	9068	-13.0	-35.1	28	10.2	31	9043	-13.0	-35.1	28	12.0	31	9043	-34.3	-67.1	12	3.6																			
250	20	10770	-40.5			27	23.8	27	10548	-49.6		28	13.8	30	10902	-43.0		28	22.0	31	10492	-44.2		29	17.6	31	10282	-49.4		08	5.7																		
250	20	12218	-56.6			27	27.1	24	11996	-59.8		28	11.7	30	12369	-49.4		27	28.4	31	11931	-55.5		28	21.0	31	11549	-47.8		25	5.7																		
150	20	13057	-60.2			27	26.5	24	12852	-54.7		28	13.3	30	13213	-60.5		27	29.6	31	13019	-61.3		28	22.1	31	12343	-67.7		24	1.1																		
150	20	14013	-62.4			27	24.6	23	13962	-54.9		28	13.4	30	14137	-67.3		27	28.3	31	14136	-68.4		28	21.7	31	13406	-64.2		22	1.1																		
125	20	15133	-62.4			28	17.5	23	16261	-57.5		29	12.5	30	16262	-57.5		27	28.2	31	16262	-57.5		28	17.1	31	16049	-60.9		22	1.6																		
100	20	16083	-68.1			28	9.7	22	16393	-59.8		30	6.0	30	16537	-75.6		27	16.6	31	16434	-74.5		30	10.4	31	16010	-49.9		21	1.0																		
80	20	17482	-67.6			28	3.9	29	17607	-61.1		33	3.9	28	17834	-73.7		27	7.7	31	17482	-72.2		32	3.1	31	17567	-5.4		21	4.6																		
70	20	18031	-65.7			33	1.1	18	18034	-61.0		35	2.3	26	18026	-70.1		25	29.1	31	18030	-65.5		33	2.6	30	18033	-5.6		21	4.6																		
70	20	19051	-44.1			30	3.4	17	19597	-59.9		31	4.3	29	19549	-67.4		14	2.1	30	19506	-65.5		33	3.8	30	19436	-31.2		16	1.6																		
70	20	20085	-50.9			35	2.2	10	20742	-58.1		37	4.2	23	20700	-83.3		35	1.3	30	20703	-61.1		33	5.0	20	20692	-5.5		11	1.4																		
40	20	22096	-50.9			38	4.7	14	22161	-51.1		40	2.8	23	22161	-51.1		38	3.3	28	22096	-50.9		38	3.3	28	22096	-51.3		30	2.8																		
30	20	23047	-52.8			38	5.2	12	24002	-52.8		40	4.8	23	23806	-44.1		39	8.4	28	23947	-50.7		39	7.3	28	23426	-5.8		30	2.8																		
25	24	25132	-50.4			39	3.6	12	25183	-51.4		40	3.4	22	25047	-40.3		38	9.3	27	25047	-47.8		40	5.9	24	25135	-4.1		30	3.1																		
20	20	26089	-48.4			38	1.8	12	26089	-49.5		39	4.9	21	26032	-40.6		38	11.1	26	26032	-40.6		38	4.9	27	26055	-48.1		30	6.0																		
15	19	28051	-44.4			31	3.3	9	28541	-48.6		28	28.4	47				38	14.5	21	28032	-47.4		37	8.1	27	28032	-47.4		35	0.8																		
10	13	31252	-40.4			29	4.8					15	31.74	49				39	17.2	9	31373	-37.3		39	1.0	31255	-42.2		30	6.0																			



# RAWINSONDE DATA

Average monthly values

MAY 1978

KOROR, CAMBINE IS. 1006 MB										KOTZEBE, AK 1013 MB										LAKE CHARLES, LA 1012 MB										LANDER, WY 827 MB										LIJUE KAUAI, HI 1013 MB									
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	Resultant Wind														
SFC	31	79	28.2	25.0	09	2.2	31	4	2.6	-3.5	36	1.1	31	5	20.1	18.6	11	1-1	31	1.697	5.2	-3.3	23	1.0	31	36	23.0	19.7	05	3.0	31	36	23.0	19.7	05	3.0													
1000	31	79	27.7	24.9	09	2.6	31	10	3.6	-4.4	03	1.2	31	109	22.4	19.5	14	1-7	31	1.697	5.2	-3.3	23	1.0	31	152	22.4	18.9	05	4.4	31	152	22.4	18.9	05	4.4													
950	31	533	24.1	22.3	09	5.4	31	526	4.6	-6.5	09	2.9	31	596	20.9	15.3	18	4-7	31	1.697	5.2	-3.3	23	1.0	31	597	19.0	16.8	07	6.2	31	597	19.0	16.8	07	6.2													
900	31	1.007	21.3	19.0	09	6.1	31	985	2.3	-8.8	13	2.2	31	1.023	18.8	10.6	19	4-7	31	1.697	5.2	-3.3	23	1.0	31	1.060	16.0	13.6	08	5.2	31	1.060	16.0	13.6	08	5.2													
850	31	1.501	18.3	15.7	09	5.7	31	1.424	-6	-11.2	15	1.9	31	1.512	16.8	5.2	21	5-1	31	1.697	5.2	-3.3	23	1.0	31	1.545	13.1	10.5	08	4.9	31	1.545	13.1	10.5	08	4.9													
800	31	2.021	16.1	12.2	08	5.3	31	1.709	-9	-13.4	16	1.7	31	2.023	14.4	-2	22	5-7	31	1.697	5.2	-3.3	23	1.0	31	2.054	11.4	8.1	07	4.8	31	2.054	11.4	8.1	07	4.8													
750	31	2.568	13.4	8.2	08	4.7	31	2.712	-1	-16.6	16	1.6	31	2.569	11.6	-5.8	23	5-3	31	1.697	5.2	-3.3	23	1.0	31	2.592	6.9	-7.5	18	2.9	31	2.592	6.9	-7.5	18	2.9													
700	31	3.148	10.6	3.0	09	4.7	31	3.297	-10.2	-22.9	12	1.3	31	3.142	7.8	-7.6	23	5-2	31	1.697	5.2	-3.3	23	1.0	31	3.162	0.9	-7.5	18	2.9	31	3.162	0.9	-7.5	18	2.9													
650	31	3.763	7.3	-6.0	09	4.3	31	3.915	-13.6	-27.2	09	1.4	31	3.749	3.6	-11.2	25	6-5	31	1.697	5.2	-3.3	23	1.0	31	3.768	3.9	-11.9	22	3.2	31	3.768	3.9	-11.9	22	3.2													
600	31	4.418	3.6	-3.8	09	4.5	31	4.119	-16.9	-30.9	09	1.5	31	4.394	-6	-16.0	26	7-8	31	1.697	5.2	-3.3	23	1.0	31	4.414	1.1	-16.7	23	4.2	31	4.414	1.1	-16.7	23	4.2													
550	31	5.120	-2	-8.2	09	4.1	31	4.767	-20.9	-33.7	09	1.6	31	5.093	-5.2	-19.2	26	8-2	31	1.697	5.2	-3.3	23	1.0	31	5.135	1.5	-20.9	23	4.1	31	5.135	1.5	-20.9	23	4.1													
500	31	5.819	-3.9	-13.9	09	2.8	31	5.465	-21.9	-37.6	11	1.9	31	5.825	-7	-26.6	27	10-3	31	1.697	5.2	-3.3	23	1.0	31	5.851	-8.8	-23.6	24	4.9	31	5.851	-8.8	-23.6	24	4.9													
450	31	6.704	-8.6	-19.0	08	2.6	31	6.219	-31.5	-42.8	10	1.7	31	6.731	-14.9	-30.3	27	11-7	31	1.697	5.2	-3.3	23	1.0	31	6.659	-14.1	-31.1	25	5.4	31	6.659	-14.1	-31.1	25	5.4													
400	31	7.608	-14.3	-24.6	09	2.6	31	7.042	-37.7	-66.8	13	1.8	31	7.711	-21.1	-36.0	27	14-2	31	1.697	5.2	-3.3	23	1.0	31	7.541	-20.9	-36.2	25	6.8	31	7.541	-20.9	-36.2	25	6.8													
350	31	8.610	-21.0	-30.7	10	2.9	31	7.993	-44.1	-1	31	4.1	31	8.846	-28.0	-41.4	27	16-1	31	1.697	5.2	-3.3	23	1.0	31	8.516	-28.3	-42.3	23	8.5	31	8.516	-28.3	-42.3	23	8.5													
300	31	9.728	-29.2	-39.5	11	2.3	31	8.969	-50.7	36	1.8	31	9.721	-36.4	-47.9	27	18-3	31	1.697	5.2	-3.3	23	1.0	31	9.399	-37.0	-49.1	26	10.5	31	9.399	-37.0	-49.1	26	10.5														
250	31	11.003	-39.6	-50.0	13	3.4	31	10.143	-55.2	27	1.0	31	10.810	-45.9	27	22-8	31	1.697	5.2	-3.3	23	1.0	31	10.835	-46.4	26	19.2	31	10.835	-46.4	26	19.2	31	10.835	-46.4	26	19.2												
200	31	12.489	-52.1	3.6	10	3.6	31	11.981	-50.3	23	1.3	31	12.242	-55.7	27	25-7	31	1.697	5.2	-3.3	23	1.0	31	11.881	-50.0	24	14.9	31	11.881	-50.0	24	14.9	31	11.881	-50.0	24	14.9												
175	31	13.370	-59.1	1	20	2.5	31	12.455	-49.2	25	6	31	13.105	-49.8	27	25-2	31	1.697	5.2	-3.3	23	1.0	31	12.736	-54.5	24	14.9	31	12.736	-54.5	24	14.9	31	12.736	-54.5	24	14.9												
150	31	14.288	-67.0	0.5	1.4	30	13.466	-49.1	21	4	31	14.059	-43.1	27	23-4	31	1.697	5.2	-3.3	23	1.0	31	13.724	-54.3	23	12.6	31	13.724	-54.3	23	12.6	31	13.724	-54.3	23	12.6													
125	31	15.369	-74.7	32	1.4	30	14.662	-49.3	19	6	31	15.171	-46.7	27	18-3	31	1.697	5.2	-3.3	23	1.0	31	14.991	-55.2	25	10.1	31	14.991	-55.2	25	10.1	31	14.991	-55.2	25	10.1													
100	31	16.642	-81.1	07	2.5	30	16.125	-49.3	21	6	31	16.511	-49.7	27	10-9	31	1.697	5.2	-3.3	23	1.0	31	16.306	-57.8	25	7.6	31	16.306	-57.8	25	7.6	31	16.306	-57.8	25	7.6													
75	31	17.895	-79.5	07	4.1	30	17.395	-49.4	23	18	5	31	17.846	-49.8	27	3-8	31	1.697	5.2	-3.3	23	1.0	31	17.709	-59.3	24	4.7	31	17.709	-59.3	24	4.7	31	17.709	-59.3	24	4.7												
50	31	18.665	-72.8	10	2.9	30	18.663	-49.4	18	5	31	19.060	-49.1	27	25-7	31	1.697	5.2	-3.3	23	1.0	31	18.946	-59.0	24	3.2	31	18.946	-59.0	24	3.2	31	18.946	-59.0	24	3.2													
25	31	19.585	-66.7	28	2.9	30	19.475	-49.1	13	5	31	19.977	-44.4	10	2-0	31	1.697	5.2	-3.3	23	1.0	31	19.915	-58.4	23	1.4	31	19.915	-58.4	23	1.4	31	19.915	-58.4	23	1.4													
0	31	20.792	-62.0	28	4.5	29	20.578	-48.7	10	1-2	30	20.791	-44.1	09	3-9	31	1.697	5.2	-3.3	23	1.0	31	20.564	-57.5	12	6	31	20.564	-57.5	12	6	31	20.564	-57.5	12	6													
40	31	22.096	-57.5	28	5.4	29	22.145	-48.6	09	2-2	30	22.192	-49.0	08	3-5	31	1.697	5.2	-3.3	23	1.0	31	22.080	-56.0	08	2.2	31	22.080	-56.0	08	2.2	31	22.080	-56.0	08	2.2													
30	31	23.939	-51.1	28	2.7	29	24.039	-48.2	09	3-9	30	23.944	-52.1	08	3-0	31	1.697	5.2	-3.3	23	1.0	31	23.919	-53.7	08	3.9	31	23.919	-53.7	08	3.9	31	23.919	-53.7	08	3.9													
20	31	25.118	-48.3	12	1.8	29	25.241	-47.9	09	4-3	30	25.131	-49.8	09	3-5	31	1.697	5.2	-3.3	23	1.0	31	25.070	-52.4	08	4.3	31	25.070	-52.4	08	4.3	31	25.070	-52.4	08	4.3													
10	31	26.605	-40.4	10	1.0	29	26.719	-49.2	09	5-2	30	26.597	-47.3	09	3-7	31	1.697	5.2	-3.3	23	1.0	31	26.539	-50.7	08	5.3	31	26.539	-50.7	08	5.3	31	26.539	-50.7	08	5.3													
0	31	28.534	-43.0	09	18.9	25	28.627	-43.4	08	5-9	28	28.516	-38.7	08	5-9	31	1.697	5.2	-3.3	23	1.0	31	28.414	-47.3	35	3	31	28.414	-47.3	35	3	31	28.414	-47.3	35	3													
10	7	31.302	-36.5			20	31.386	-38.8	09	6-2	21	31.272	-43.9	30	3-5	10	31	1.697	5.2	-3.3	23	1.0	31	31.142	-40.4																								



## Average monthly values

MAY 1978

RAPID CITY, SD										ST CLOUD, MN										ST PAUL ISLAND, AK										SALEM, IL										SALEM, OR									
902 MR										977 MB										1010 MR										992 MB										1013 MB									
SFC	31	966	8.0	4.9	36	.9	31	365	8.8	0.6	05	.8	31	10	2.4	.0	34	2.3	31	174	12.4	10.5	12	.5	31	61	8.3	5.5	20	.8																			
1000	90						31	107					31	107	1.2	.1	34	2.7	31	174				1.7	31	72																							
950	31	14659	8.6				31	499					31	499	-2.9	.9	34	2.7	31	542	14.6	7.6	23	1.7	31	59	7.8	2.8	29	.9																			
900	14	14014	8.6	4.0	34	1.5	31	997	10.3	3.2	24	.8	31	933	-.3	.6	38	1.3	31	998	12.1	6.5	20	4.5	31	1037	5.4	.7	26	1.1																			
850	31	14659	8.6	1.7	27	1.9	31	1471	7.8		1	29	.9	31	1349	-2.3	.9	34	.7	31	1475	9.7	3.8	28	5.9	31	1302	2.7	-3.2	25	2.2																		
800	31	14961	7.5	-1.0	24	2.4	31	1469	5.8	-4.2	29	.8	31	1869	-.7	-1.4	35	1.0	31	1977	7.4	.6	28	5.8	31	1991	.4	-.6	26	3.0																			
750	31	24690	4.4	-5.3	25	2.5	31	2496	3.4	-8.0	28	1.3	31	2374	-7.1	-15.6	35	1.6	31	2536	4.8	-4.6	28	6.1	31	2550	-2.1	-12.5	26	1.8																			
700	31	300-8	5.5	-9.3	24	3.1	31	3052		-12.4	28	1.2	31	2477	-10.1	-20.5	36	1.9	31	3032	2.2	-8.9	29	6.1	31	3063	-2.1	-15.8	28	1.8																			
650	31	3663	-3.3	-12.2	24	3.1	31	3653		-14.5	28	1.1	31	3677	-13.9	-26.2	36	2.3	31	3662		-13.9	28	7.9	31	3673	-3.1	-20.5	29	7.7																			
600	31	42208	7.7	-16.6	24	4.0	31	4273	-6.8		27	2.2	31	4093	-1.5	-28.0	36	2.3	31	4296	-4.4	-19.7	28	8.4	31	4249	-11.7	-28.8	29	9.4																			
550	31	44940	-11.9	-20.6	23	5.8	31	44967	-11.0	-23.3	28	3.4	31	4732	-70.0	-30.8	36	2.9	31	4676	-8.4	-24.0	28	9.3	31	46910	-15.9	-28.7	29	11.4																			
500	31	56062	-16.9	-26.0	24	7.3	31	5673	-15.8	-29.6	27	4.0	31	5431	-31.0	-35.2	36	2.9	31	59708	-11.3	-.29	1	9.4	31	5922	-2.3	-93.1	20	14.8																			
450	31	64445	-22.4	-31.2	24	8.6	31	64557	-21.1	-35.5	27	5.4	31	6180	-29.9	-40.6	35	3.4	31	64502	-18.4	-33.9	28	11.0	31	64395	-25.3	-36.5	29	17.9																			
400	31	72299	-28.7	-38.4	23	10.3	31	7316	-27.5	-.40	27	7.0	31	7019	-35.9	-46.4	35	3.4	31	7368	-25.3	-.38	1	12.2	31	7239	-31.1	-44.2	1	20.4																			
350	31	82244	-36.0	-45.7			31	8226	-34.5	-45.7	28	8.0	31	7936	-42.8	.8		3.4	31	8328	-32.2	-43.8	28	19.5	31	8328	-32.2	-43.8	28	19.5																			
300	31	9291	-44.6				31	9291	-44.6			10	10	9291	-44.6			3.4	31	9291	-44.6			10	10	9291	-44.6			10	10																		
250	31	10449	-52.1				31	10449	-52.1			10	10	10449	-52.1			3.4	31	10449	-52.1			10	10	10449	-52.1			10	10																		
200	31	11918	-56.5				31	11960	-57.2			26	14.9	31	11399	-69.0		31	4.3	31	12006	-55.4		27	22.0	31	11855	-56.1		40	20.0																		
175	30	12767	-55.7				24	14.5	30	12805	-56.9		26	12.9	31	12476	-68.5		31	3.6	31	12916	-57.9		28	21.1	31	12703	-56.0		29	15.2																	
150	31	13751	-54.6				24	11.8	29	13791	-55.0		26	11.7	31	13491	-68.1		29	2.8	31	13987	-57.8		28	17.3	31	13689	-54.8		29	12.0																	
125	29	146915	-55.9				24	10.8	29	14955	-55.9		25	10.4	31	14049	-69.5		29	2.3	31	14328	-58.7		28	12.5	31	14652	-55.8		28	9.9																	
100	29	16329	-58.0				25	8.1	29	16366	-57.9		25	7.9	31	16151	-69.9		27	7.7	31	16228	-61.3		27	7.7	31	16221	-57.1		28	9.9																	
75	29	17730	-59.0				24	5.4	24	17772	-58.9		25	5.7	31	17609	-50.1		19	.9	31	17810	-67.8		28	4.1	31	17687	-57.1		28	9.9																	
50	29	18559	-58.8				23	3.9	29	18611	-58.5		25	3.7	31	18482	-50.0		12	.9	31	18453	-61.9		31	1.5	30	18331	-57.4		26	2.9																	
25	29	19540	-57.9				24	2.7	28	19586	-57.8		25	1.4	31	19449	-50.6		11	1.6	31	19597	-60.8		32	1.2	30	19367	-57.3		21	.8																	
0	50	204691	-57.5				14	.8	28	20733	-56.9		13	.8	29	20480	-51.1		10	1.1	30	204736	-59.3		36	2.3	30	20460	-56.0		29	.6																	
30	27	22206	-55.7				09	1.5	28	22151	-55.2		10	2.1	29	22132	-50.9		10	2.7	30	22147	-56.4		07	3.1	30	22278	-59.9		08	2.9																	
40	27	233948	-53.7				08	3.3	28	23497	-53.3		08	3.3	29	24027	-50.4		16	3.5	30	23189	-53.1		07	3.3	29	23912	-54.2		08	3.9																	
27	25	25115	-52.0				08	3.9	27	25173	-52.0		08	4.2	27	25918	-50.1		10	2.9	29	25918	-51.9		07	2.9	29	25908	-53.0		08	3.3																	
15	23	268573	-50.7				16	3.4	26	27023	-50.9		08	8.2	27	28051	-47.0		09	5.2	30	28212	-46.7		05	1.5	29	28759	-51.8		08	3.7																	
13	23	284608	-48.8				16	3.4	28	28526	-48.3		08	8.2	27	28051	-47.0		09	6.9	30	284525	-45.3		02	1.0	29	280448	-46.73		08	4.4																	
10	19	31221	-40.3				08	3.7	16	31231	-40.5		08	3.1	19	31301	-40.0		08	7.2	24	31172	-39.3		33	.8	21	31104	-41.6		09	5.0																	
7	6	33672	-35.7					8	33700	-34.8											8	33779	-33.4			7	33390	-35.0																					



## Average monthly values

MAY 1978

- 20 -

## Average monthly values

MAY 1970

- 21 -



## SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

MAY 1978

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
BLUE HILL OBSERVATORY, MA									
	Air mass								
	4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89
NO DATA RECEIVED									
MADISON, WI									
	Air mass								
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69
1-----	S .59	S .66	S .72	S .82	S .93	S .80	S .70	S .62	S .56
2-----	S .58	S .65	S .72	S .81	S .91	S .82	S .69	S .61	S .54
6-----	M .55	M .61	S .71	S .82	-----	-----	-----	-----	-----
10-----	M .47	M .54	M .64	M .77	-----	-----	-----	-----	-----
17-----	I .22	M .46	M .54	M .71	-----	-----	M .51	M .43	M .37
18-----	-----	M .49	M .58	M .69	M .86	M .72	M .57	M .47	M .40
19-----	M .34	M .43	M .50	M .59	-----	-----	-----	-----	-----
20-----	-----	-----	-----	M .68	-----	-----	-----	-----	-----
21-----	S .54	S .62	S .71	S .82	S .95	-----	-----	-----	-----
29-----	-----	-----	-----	M .65	M .80	-----	-----	-----	-----
30-----	M .38	M .43	M .57	M .70	-----	-----	-----	-----	-----
Aver- ages-	.46	.54	.63	.73	.89	.78	.62	.53	.47

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
MAUNA LOA OBSERVATORY, HI									
	Air mass								
	3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34
18-----	1.11	1.19	1.27	1.38	-----	-----	-----	-----	-----
19-----	1.20	1.25	1.31	1.43	-----	-----	-----	-----	-----
20-----	1.04	1.12	1.22	1.33	-----	-----	-----	-----	-----
29-----	1.07	1.16	1.25	1.37	1.50	-----	-----	-----	-----
30-----	1.12	1.19	1.28	1.39	-----	-----	-----	-----	-----
31-----	1.07	1.16	1.25	1.36	-----	-----	-----	-----	-----
Aver- ages	1.11	1.18	1.26	1.38	1.50	-----	-----	-----	-----
TUCSON, AZ									
	Air mass								
	4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64
1-----	-----	-----	-----	-----	1.39	-----	-----	-----	-----
2-----	-----	-----	-----	-----	1.38	1.16	.94	.79	.70
3-----	.63	.72	.89	-----	1.38	1.01	.88	.78	.78
4-----	.78	.88	1.02	1.20	1.44	1.26	1.11	.98	.86
5-----	.86	.98	1.07	-----	1.41	D1.08	D .88	D .72	D .52
7-----	.85	.97	1.09	1.27	1.47	1.25	1.09	.98	.88
8-----	.93	1.03	1.16	1.30	1.48	1.26	1.11	.99	.88
9-----	.93	1.04	1.17	1.31	1.50	-----	-----	-----	-----
10-----	.92	1.01	1.16	1.29	-----	-----	-----	.97	-----
11-----	.85	.96	1.10	1.26	1.51	1.32	1.11	1.01	.92
12-----	.92	1.03	1.16	1.30	1.48	1.31	1.17	1.03	.93
13-----	.91	1.02	1.14	1.28	1.46	1.18	1.01	.89	.75
14-----	.76	.88	1.02	1.21	1.43	1.23	1.08	.94	-----
15-----	.96	1.05	1.17	1.31	1.50	-----	-----	1.00	.91
16-----	.93	1.04	1.16	1.29	1.50	1.26	1.04	.91	.78
17-----	.75	.87	1.05	1.26	1.51	1.31	1.14	1.01	.88
19-----	-----	-----	-----	-----	1.42	1.23	1.04	.91	.81
20-----	-----	-----	1.03	1.20	1.45	1.24	1.07	.93	.82
21-----	.76	.87	1.01	1.20	1.44	1.23	1.05	.94	.84
22-----	.83	.93	1.08	1.26	-----	1.28	1.13	1.01	.90
23-----	.92	1.03	1.14	1.30	1.47	1.21	1.04	.94	.81
24-----	.81	.94	1.09	1.23	1.46	1.22	-----	-----	-----
25-----	.67	.81	.97	1.22	-----	-----	-----	-----	-----
26-----	.69	.82	.97	1.17	1.43	1.17	.99	.87	.79
27-----	.72	.85	1.00	1.19	1.41	1.17	.97	.81	.69
28-----	.68	.81	.96	1.17	1.41	1.14	.99	.85	.75
29-----	.78	.89	1.03	1.21	1.43	1.19	.99	.85	.77
30-----	.80	.91	1.05	1.24	1.43	1.20	1.02	.90	.80
31-----	.75	.86	1.00	1.16	1.38	1.11	.94	.81	.70
Aver- ages	.82	.93	1.06	1.24	1.45	1.22	1.04	.92	.80

# NET RADIATION

Net radiation in langleya per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

MAY 1978

Date. . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleya. . .	135	138	205	143	153	186	93	175	226	75	219	246	204	190	233	207	146	177	166	133	200	242	81	92	187	155	98	249	172	224	112	170

## SOLAR ULTRA-VIOLET RADIATION DATA

Daily totals and monthly average (  $\lambda$  3900 Å ) at Ames, Iowa.

Date. . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleya. . .																																

# REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- ° Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data Service, NOAA, monthly publication STORM DATA.
- < No Storm Data Report received for this State.
- < Report Incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion.

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeterminable
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Sand
BN	Blowing Sand	GF	Ground Fog	K	Smoke	S	Slight Haze-indeterminable
D	Dust	H	Haze	KI	Intense Smoke		
DI	Intense Dust	H!	Intense Haze	KM	Moderate Smoke		

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

SOLAR ULTRA-VIOLET RADIATION DATA: These data are from an U-V Eppley total ultra violet sensor and Speedomax H (Leeds Northrup) Recorder. This instrument has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), May.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), May 1978

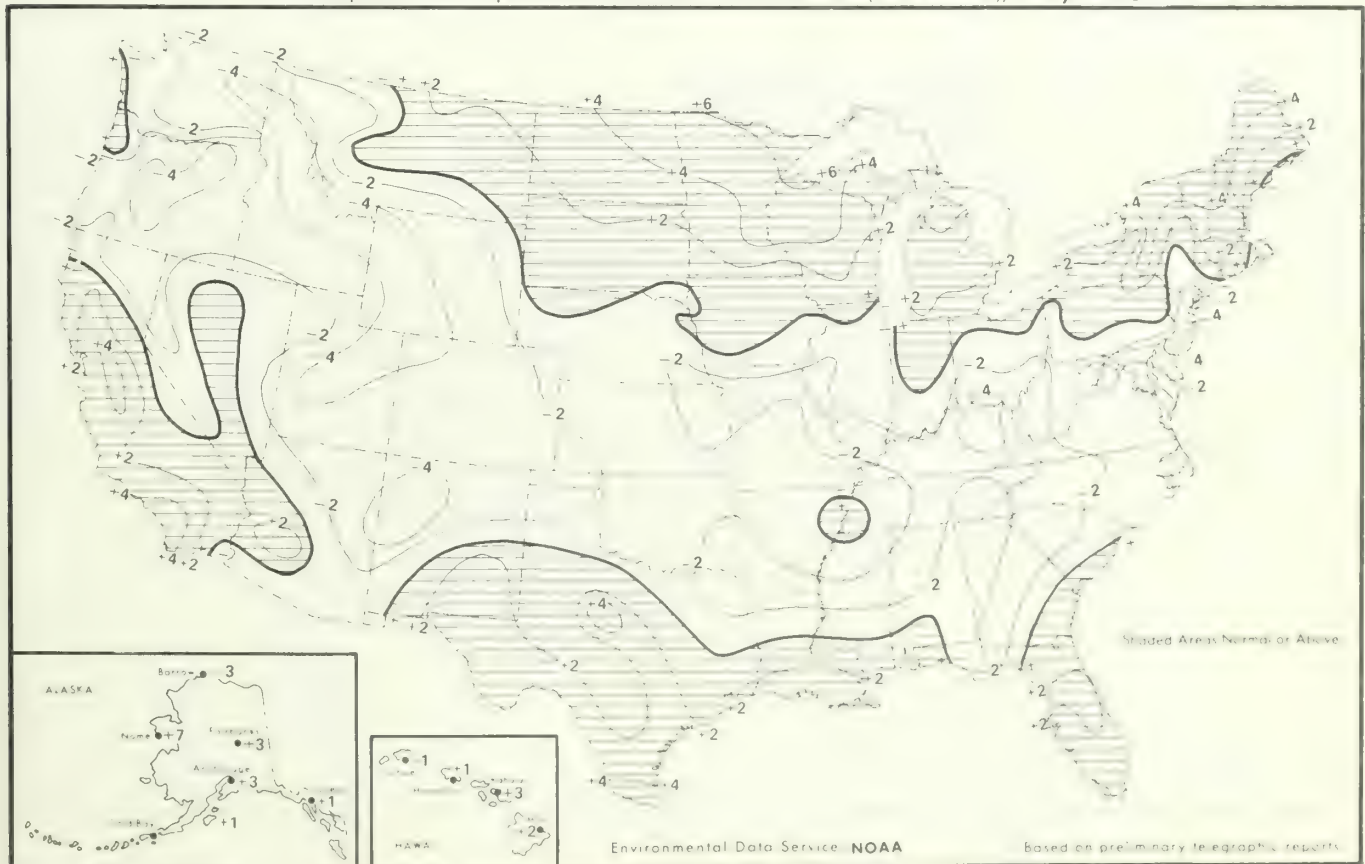
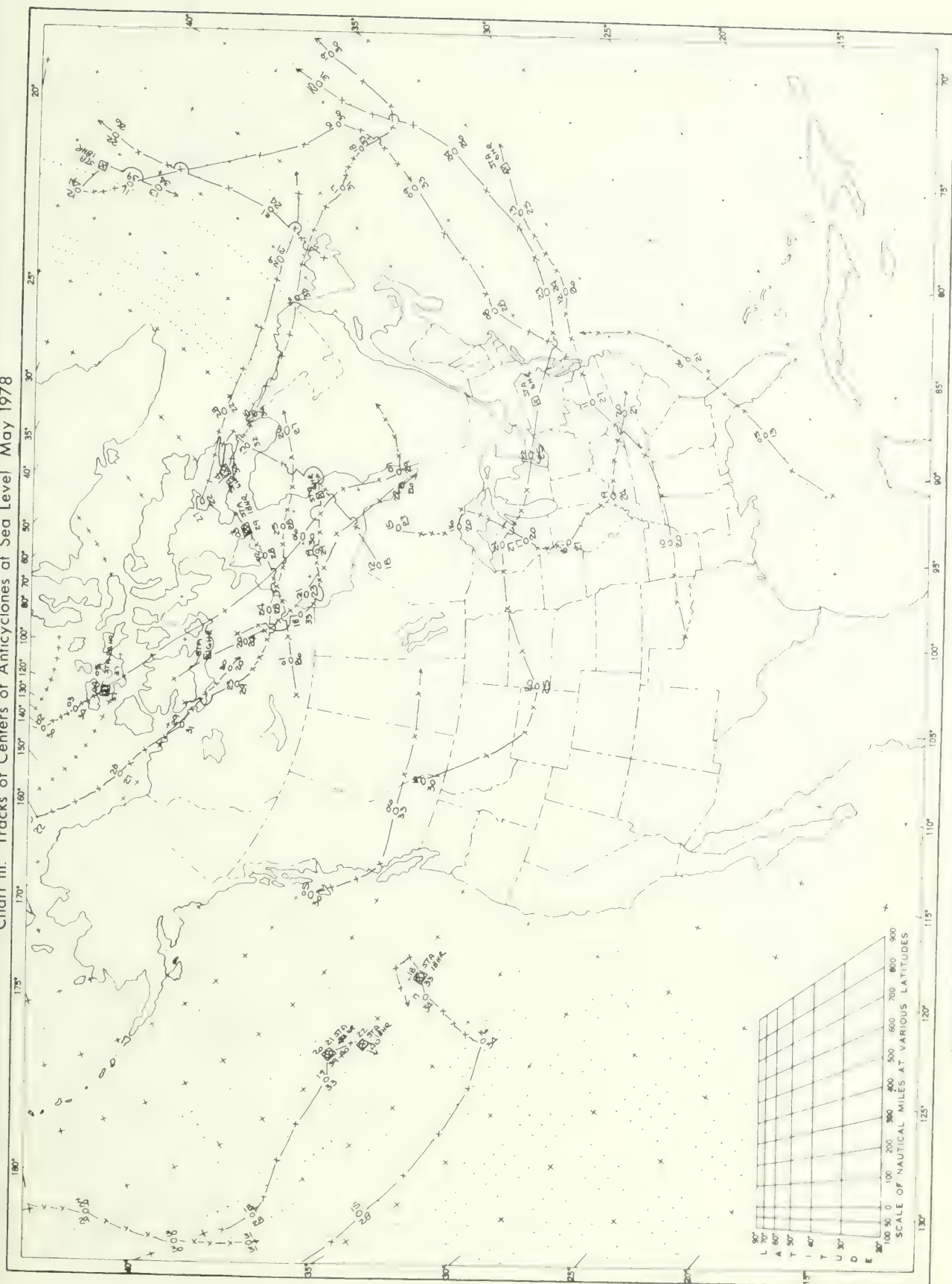






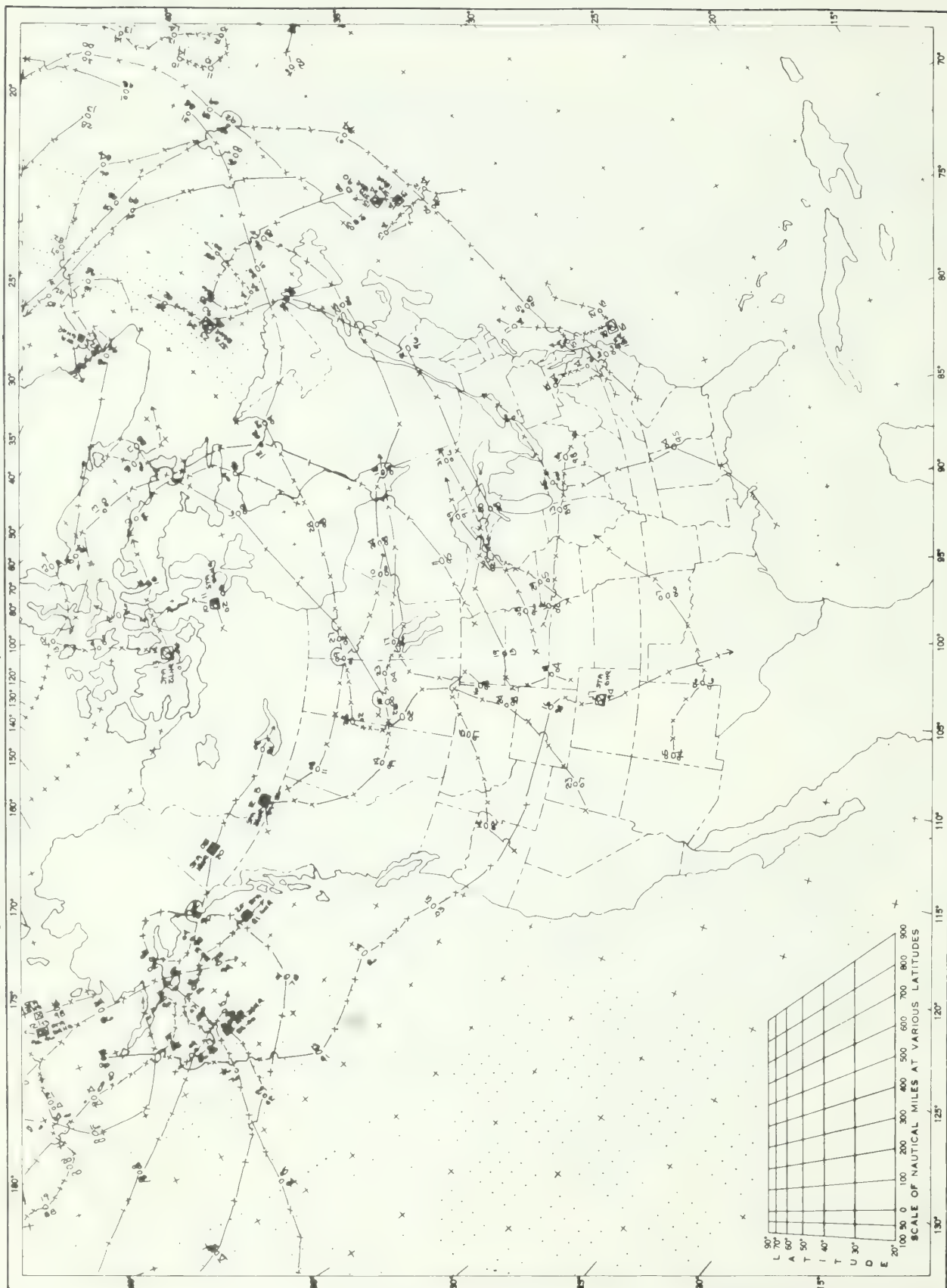
Chart III. Tracks of Anticyclones at Sea Level May 1978



Circle indicates position of center at 7.00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar  
 'x's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates reformation at new position (Only those centers which could be identified for 24 hours or more are included)



Chart IV. Tracks of Centers of Cyclones at Sea Level, May 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure below circle indicates date, figure below pressure to nearest millibar.  
 'X's' indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



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JUNE 1978

VOLUME 29

NUMBER 6

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRA-  
TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH  
CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JUNE 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Surges of cool Canadian air pushing into the northern Plains during June caused above normal rainfall from the border of North and South Dakota southeastward to Indiana and into Pennsylvania and New England. Severe flooding occurred in Wisconsin and southern Michigan. Elsewhere, warm, moist, unstable air caused thunderstorms from the southern Rockies through the South. Little rain fell in the Southwest. Temperatures averaged near normal for the month.

As the month began, the eyes of the Nation were on the Corn Belt where planting and plowing were as much as two weeks behind schedule. Cool weather and frequent rain on wet soils kept farmers out of their fields. Some progress was made during the first four days of the month, especially in the eastern portion of the Midwest.

Elsewhere during the first four days, intense thunderstorms rumbled over Texas, the lower Mississippi Valley, and the Gulf Coast. Temperatures ranged warmer than normal in the West and east of the Mississippi River, but cool weather prevailed in the Plains and Rockies.

During the week of the 5th-11th, corn growers made great strides in planting and the Nation reached 96% of the intended acreage planted. The weather hurt some farmers from the Texas Panhandle to the Gulf Coast and northeastward to the mid-Atlantic States. Heavy downpours caused local flooding in some Texas and Louisiana areas and in southern Alabama. The cool weather from the Plains moved eastward; the week's average temperatures scored warmer than normal only along the East Coast and west of the Rockies.

The mid-month week of the 12th-18th, began a series of cool air outbreaks from central Canada into the

northern Plains. The cool air moved slowly southeastward colliding with warm, moist air from the Gulf of Mexico to set off thunderstorms. The most intense and widespread rain fell in the upper Mississippi Valley and western Great Lakes region. Some very heavy localized rains flooded points in Florida and Alabama. Except for the Pacific Northwest, little or no rain fell in the West. The eastern United States enjoyed cool, clean air. By the end of the week, however, record-breaking heat baked the Rocky Mountains and the Southwest.

In the period of the 19th-25th, rain was heaviest in the central Plains and upper Mississippi Valley. Winter wheat combining lagged in Oklahoma and Kansas due to rainy weather, but Texas leaped ahead with its previously delayed harvest as the week produced little or no rain there. Cool air continued to push into the upper Mississippi Valley in surges. Some heavy thunderstorm activity occurred along the front bounding the cooler air as it moved south and eastward. A disturbance in the eastern Gulf brought heavy downpours to the lower Florida peninsula. Again, little or no rain fell in the hot Southwest.

Warm air surged northward during the last four days of the month and fought for supremacy with the cool Canadian air in Wisconsin and southern Michigan causing thunderstorms and floods in those areas before the warm air pushed the cool air back. By the last day of the month, another such battle was staged in the eastern Dakotas and west central Minnesota. Thunderstorms were rife throughout the Nation east of the Rockies. Most of the Nation, except for the Southwest and Plateau region was much warmer than normal. The central Plains and Mississippi Valley soared to 9° warmer than normal.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

JUNE 1978

STATE	Temperature						Precipitation					
	Monthly extremes						Monthly extremes					
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least		
		°F			°F			In.		In.		
Alabama	Eufaula Wildlife Refuge	104	36	Valley Head	47	14	Robertsdale	12.94	Wadley	1.32		
Alaska	Haines	80	30	Umiat	16	2	Yakutat WSO AP	8.27	Lonely	.09		
Arizona	Bullhead City	120	23	Fort Valley	23	5	Anvil Ranch	1.50	59 Stations	.00		
Arkansas	2 Stations	103	30	2 Stations	44	9	Natural Dam	12.99	Taylor	.58		
California	Mecca Fire Station	118	9	White Mountain 2	18	28	Manzanita Lake	3.50	218 Stations	.00		
Colorado	La Junta FAA AP	108	25	Wolf Creek Pass 1 E	15	30	John Martin Dam	5.51	2 Stations	.00		
Connecticut	Hartford WSO AP	92	29	Coventry	39	15	Falls Village	6.43	Westbrook	.71		
Delaware	Milford 2 WSW	95	19	Newark University Farm	44	14	Wilmington Porter Reservoir	4.65	Middletown 1 WSW	1.43		
Florida	Woodruff Dam	102	30	3 Stations	58	21	Pensacola FAA AP	17.68	Tampa WSMO	2.03		
Georgia	Thomaston 2 S	109	29	Blairsville Exp Station	44	14	Jesup 8 S	7.54	Swainsboro	.66		
Hawaii	Keawakapu Beach 260.2	95	27	Mauna Loa Slope Obs	31	4	Intake Wainiha PC 1086	34.57	4 Stations	.00		
Idaho	2 Stations	98	29	Dixie	21	1	2 Stations	2.93	Grace	.1		
Illinois	Carbondale	103	30	Barrington	38	14	Channahon Dresden Island	8.87	Carroll 6 NW	.23		
Indiana	3 Stations	102	30	Angola	34	14	Cambridge City	7.96	Petersburg 61 Bridge	.45		
Iowa	5 Stations	99	30	Sibley	34	8	Northwood	8.98	Logan	.88		
Kansas	2 Stations	111	26	3 Stations	42	8	Elk City Dam	9.34	Oberlin	.46		
Kentucky	2 Stations	102	30	2 Stations	40	15	Covington WSO AP	6.63	Sebree	.73		
Louisiana	Logansport 4 ENE	102	30	Ashland 2 S	52	16	New Iberia 5 NW	16.02	Minden	.80		
Maine	Houlton FAA AP	91	26	2 Stations	33	16	Middle Dam	6.58	Grand Lake Stream	2.33		
Maryland	Cumberland 2	98	27	Oakland 1 SE	35	15	Mc Henry 2 NW	7.51	Conowingo Dam	1.34		
Massachusetts	Clinton	93	20	Borden Brook Reservoir	28	15	Quabbin Intake	6.07	New Bedford	.79		
Michigan	Monroe	94	2	Heiman	26	13	Burlington 3 E	10.25	Petoskey	.80		
Minnesota	Pipestone	98	30	Tower 3 S	25	9	Albert Lea	9.87	Caribou 2 S	.69		
Mississippi	3 Stations	101	30	3 Stations	49	15	Leakesville	12.91	2 Stations	1.03		
Missouri	2 Stations	101	30	4 Stations	39	9	Mexico	6.60	Alton	.64		
Montana	Ballantine	96	9	Elk Park	19	20	Raymond Border Station	5.53	Libby Dam	.16		
Nebraska	Beaver City	109	15	Agate 3 E	29	2	Barneston 1 NW	6.80	Minden	.08		
Nevada	Sunrise Manr Las Vegas	115	8	Mountain City Ranger Stn	23	1	Droyada	1.07	41 Stations	.00		
New Hampshire	Keene	91	19	Mount Washington	20	10	Colebrook 2 E	11.08	Peterboro 2 S	2.58		
New Jersey	Chatsworth	96	19	Flemington 3 E	34	15	Sussex 1 SE	4.99	Cape May 2 NW	1.28		
New Mexico	3 Stations	110	23	Luna Ranger Station	25	3	Artesia 6 S	9.77	4 Stations	.00		
New York	Rochester WSO AP	95	27	Camden 2 NW	27	6	Glens Falls Farm	7.60	Patchogue 2 N	.84		
North Carolina	7 Stations	100	29	Banner Elk	36	11	Laurinburg	9.44	Bayboro 3 E	.03		
North Dakota	4 Stations	93	30	Hankinson R R Station	28	8	Forman 5 SSE	7.34	Cavalier 7 NW	.65		
Ohio	2 Stations	98	28	2 Stations	34	14	Barnesville-Frds School	7.75	Pandora	1.54		
Oklahoma	Hooker	112	25	2 Stations	44	9	Stilwell 1 NE	11.85	2 Stations	.89		
Oregon	3 Stations	99	29	Fremont	23	16	Otis 2 NE	4.85	The Dalles	.1		
Pennsylvania	Hanover	97	28	Clarion 3 SW	25	14	Indiana 3 SE	9.34	Philadelphia WSO AP	1.75		
Puerto Rico	Magueyes Island	97	20	Cerro Maravilla	53	12	San Sebastian 2 WNW	15.63	Manati 2 E	.57		
Rhode Island	Providence WSO AP	90	28	Kingston	37	15	North Foster 1 E	2.27	Block Island WSO AP	.75		
South Carolina	Anderson	106	28	Ninety Nine Islands	48	14	Caesars Head	6.98	Edisto Island 1 WNW	.86		
South Dakota	2 Stations	102	29	Deerfield 4 NW	23	2	Aberdeen WSO AP	7.30	Porcupine 16 NW	.22		
Tennessee	2 Stations	101	30	Tazewell	40	14	Crossville Exp Station	7.22	Franklin Sewage Plant	1.08		
Texas	Candelaria	114	20	2 Stations	48	3	Refugio	15.32	Naples 1 SW	.1		
Utah	Saint George	107	8	3 Stations	20	1	Woodruff	.98	37 Stations	.00		
Vermont	Vernon	92	20	Mount Mansfield	27	10	Mount Mansfield	12.19	Bethel 4 N	3.10		
Virginia	2 Stations	98	29	Big Meadows	34	14	Diamond Springs	8.92	Covington	1.00		
Virgin Islands	Cruz Bay	94	11	2 Stations	68	12	Caneel Bay Plantation	5.85	Kings Hill	.25		
Washington	2 Stations	100	5	Holden Village	25	16	Naselle 1 ENE	4.30	Satus Pass 2 SSW	.00		
West Virginia	Wayne 2	98	28	Seneca State Forest	29	15	Rowlesburg 1	7.70	Gary	1.32		
Wisconsin	Stoughton	96	28	2 Stations	27	8	2 Stations	10.51	Crivitz High Falls	1.42		
Wyoming	2 Stations	98	29	Burgess Junction	5	12	Sundance	3.06	Pavillion	.1		

## METRIC UNITS

JUNE 1979

[illegible]

## CLIMATOLOGICAL DATA

METRIC UNITS

JUNE 1978

State and Station	Pressure			Temperature					Precipitation					Wind				No of days (sunrise to sunset)	Sky cover, tenths (at sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Station Q	mb	mb	Average maximum		Average from normal	Highest Date	Lowest Date	No of days		Average relative humidity %	Total mm	Total mm	Resultant speed m/s	Resultant direction	Speed m/s	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
				C	F				Max 32.2 °C or above	Min 0 °C or lower										Average dew point °C	No of days	Snow, ice pellets	Maximum depth on ground																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Elevation (ground)	m	mb	mb	C	F	C	F	C	F	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm									mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm



## CLIMATOLOGICAL DATA

METRIC UNITS

JUNE 1978

[illegible]

## CLIMATOLOGICAL DATA

METRIC UNITS

JUNE 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind			No. of days (sunrise to sunset)			Sky cover, tenths (sunrise to sunset)												
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days	Max $\geq 2.2^{\circ}\text{C}$ or above	Min $0^{\circ}\text{C}$ or lower	Average dew point	Total	Departure from normal	Greatest in 24 hours	25 mm or more	With thunderstorms		Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10			
m	mb	mb	C	F	C	F	C	F	C	F	C	F	C	F	mm	mm	mm	mm	mm	mm	m/s	m/s	m/s	m/s	mm	mm	mm	mm	mm			
MINNESOTA																																
ST CLOUD	313	977.0	1013.7	24.4	17.9	-0.3	31.7	29	3.3	8	0	0		153	36	56	11	0	0	0	0											
MISSISSIPPI																																
JACKSON	94	1005.4	1016.9	32.0	26.7	0.3	36.7	29.4	13.9	15	15	0	21.1	75	26	9	8	7	0	0	0	0.4	12	10.3	20	25	10	14	6	4.8		
MEMPHIS	88	1004.6	1017.4	32.3	25.9	-0.3	37.1	29	13.9	14	11	0	17.4	72	70	26	9	7	0	0	0	0.2	1	11.6	15	23	9	10	8	5.8		
MISSOURI																																
COLUMBIA REGIONAL	270	984.4	1016.3	29.1	23.1	0.3	35.7	30.4	10.0	6	8	0	17.8	74	64	27	8	7	0	0	0	1.3	18	12.1	54	17	11	10	9	5.3		
KANSAS CITY	309	979.0	1015.1	29.4	17.9	0.9	36.1	16	10.6	9	11	0	16.7	67	87	21	7	8	0	0	0	2.3	16	14.3	54	16	12	10	8	4.7		
ST JOSEPH	247																															
ST LOUIS	163	997.0	1016.8	29.3	23.6	0.7	35.4	28	10.6	9	10	0	16.1	65	61	25	7	6	0	0	0	1.6	21	16.1	54	1	10	9	5.1	6.7		
SPRINGFIELD	184	971.9	1016.6	28.8	22.7	-0.4	35.6	30	7.2	9	8	0	15.6	67	103	17	29	8	5	0	0	1.8	17	11.6	54	1	13	6	9	4.6		
MONTANA																																
BILLINGS	1087	891.0	1013.4	25.2	10.3	0.8	32.8	29.4	4.4	12	4	0	7.8	58	39	15	8	5	0	0	0	1.1	28	16.5	34	19	10	12	8	5.2	6.3	
GLASGOW	496	931.9	1012.9	24.2	9.1	0.4	30.0	9	3.9	7	0	0	6.0	66	69	23	15	9	0	0	0	0.4	20	13.0	32	16	9	12	9	5.3	7.0	
GREAT FALLS	1116	884.9	1014.4	24.8	9.1	0.9	31.7	28	2.8	2	0	0	1.0	53	65	14	24	9	0	0	0	2.7	24	18.8	34	30	10	14	8	5.5	8.6	
HAVERA	788	922.1		25.9	9.4	1.7	33.9	28	4.4	20	3	0									0	2.3	23	19.2	34	30	9	16	5	4.8	8.6	
HELENA	1167	881.1	1014.7	25.8	8.8	1.0	33.9	28	3.3	20	2	0	3.3	44	11	23	9	6	0	0	0	2.1	28	15.6	34	30	9	16	5	4.9	7.0	
KALISPELL	904	912.3	1016.0	23.1	17.3	1.4	31.1	28	2.2	20	0	0	6.7	61	41	42	10	11	7	0	0	0.8	18	11.6	25	9	8	12	10	5.3	7.0	
MAILES CITY	401	921.1	1012.7	25.9	11.8	1.9	34.4	30	5.6	1	3	0	1.6	63	38	42	9	12	9	0	0	0.6	30	13.0	33	27	10	13	7	5.0	8.6	
MISSOULA	672	905.2	1016.2	23.9	6.7	0.4	31.1	28	1.1	1	0	0	5.1	58	20	34	10	6	5	0	0	1.1	31	14.3	34	18	10	12	8	5.2	6.3	
NEBRASKA																																
GRAND ISLAND	561	948.9	1013.7	30.6	15.7	1.7	41.1	15	5.0	8	14	0	13.3	59	13	11	4	5	0	0	0	1.3	17	14.3	18	10	13	12	5	4.6	7.7	
LINCOLN	359	971.0	1013.6	29.0	15.0	-0.2	36.7	16	3.9	8	10	0	1.6	70	22	12	3	4	0	0	0	1.3	21	19.3	35	23	12	16	8	4.3	7.7	
NORFOLK	971	915.9	1013.9	27.1	15.2	0.4	36.7	30	5.6	8	10	0	1.4	60	44	12	3	4	0	0	0	1.5	14	19.1	5	23	11	11	8	4.9	7.9	
NORTH PLATTE	296	917.7	1013.7	27.7	12.5	0.9	35.3	30	2.2	2	12	0	1.2	63	56	36	4	3	0	0	0	1.2	14	15.6	17	9	14	7	5.3	7.9		
OMAHA	199	928.8	1014.1	28.8	16.5	0.3	37.7	16	2.1	8	12	0	1.6	64	47	35	4	6	0	0	0	1.1	19	11.6	34	27	10	13	5	4.6	7.0	
OMAHA (NORTH)	1204	879.8	1012.9	28.4	12.4	1.2	36.7	15	3.2	2	13	0	0.4	55	61	24	12	10	0	0	0	0.4	8	13.0	33	27	10	13	7	5.0	8.6	
SCOTTSDALE	789	922.5	1012.5	28.3	11.5	0.6	36.7	15	3.2	2	9	0	4.3	51	64	27	43	7	0	0	0	0.8	24	21.0	34	25	11	16	3	4.3	8.6	
NEVADA																																
ELKO	1339	845.2	1013.9	26.4	15.9	0.6	31.7	9	1.7	17	0	0	1.7	41	5	21	3	3	0	0	0	1.0	27	12.5	28	10	12	16	2	3.9	8.9	
FLY	1904	810.0	1012.0	26.4	15.1	0.8	31.7	9	1.7	17	0	0	-5.0	21	7	24	1	0	0	0	0	2.6	22	15.2	34	28	14	12	5	3.7	8.9	
LAS VEGAS	459	934.6	1009.0	38.7	30.6	2.7	43.3	8	16.7	17	30	0	-3.3	12	2	28	0	0	0	0	0	4.3	22	17.9	54	23	14	12	5	1.9	9.6	
RENO	1342	864.6	1014.1	27.7	15.2	0.1	35.4	8	0.6	25	4	3	0.0	34	2	28	1	0	1	0	0	1.6	28	10.1	12	21	7	12	2	2.8	9.5	
WINNEVOCA	1311	868.9	1014.1	28.7	17.0	0.5	35.6	8	-2.2	25	4	3			2	-24	1	4	2	0	0	1.1	30	15.6	34	27	15	11	4	3.8	8.7	
NEW HAMPSHIRE																																
CONCORD	104	1002.4	1014.9	26.6	10.3	0.3	32.2	27	2.2	16	3	0	10.0	61	81	28	10	4	0	0	0	1.0	25	14.3	34	19	10	11	9	5.4	7.0	
MT WASHINGTON OBS	1909			9.8	31.0	-0.7	17.2	19	-6.7	10	0	8			273	110	47	19	2	89	25	45.24	34	43.24	34	14	3	4	23	8.3	30	
NEW JERSEY																																
ATLANTIC CITY	20	1014.2	1016.7	26.5	14.2	-0.5	32.4	19	6.7	15	1	0	14.4	71	76	10	9	8	0	0	0	1.8	22	10.3	19	7	12	10	8	4.9	5.9	
ATLANTIC CITY U	3	22.2	15.3	22.2	18.8	-1.8	30.0	28	10.0	15	0	0			53	-19	11	10	8	0	0	0	1.8	22	10.3	19	7	12	10	8	4.9	5.9
NEWARK	2	1015.6	1016.5	27.0	16.9	0.0	33.7	19	9.4	14	3	0	13.3	61	64	-24	18	11	3	0	0	0	1.5	26	11.2	30	12	11	7	5.0	6.2	
TRENTON U	17			27.1	16.4	-0.1	32.8	19	9.4	14	2	0			64	-13	25	10	10	0	0	0	1.5	26	11.2	30	12	11	7	5.0	6.2	
NEW MEXICO																																
ALBUQUERQUE	1519	839.5	1011.2	33.3	15.0	0.5	37.8	24	7.8	6	20	0	3.3	32	27	14	3	3	0	0	0	0.3	17	18.3	34	27	5	2	2	2.8	8.6	
CLOUTON	1115			38.1	20.8	0.1	37.2	25	8.3	8	19	0	13.3	52	68	17	10	11	0	0	0	2.0	12	25.9	34	27	5	2	2	2.8	8.6	
ROSELLE	1112	889.9	1010.9	35.7	18.4	1.3	41.1	24	10.6	3	19	0			109	78	71	8	11	0	0	2.0	12	25.9	34	27	5	2	2	2.8	8.6	
NEW YORK																																
ALBANY	84	1005.1	1015.8	24.7	11.3	-1.7	31.1	27	4.4	5	0	0	12.2	72	117	41	39	10	4	0	0	1.9	23	14.8	34	19	10	13	7	5.4	6.4	
BINGHAMTON	485	938.7	1016.8	22.6	12.6	-0.6	31.1	27	5.0	15	0	0	1.7	71	98	19	12	8	0	0	0	2.1	26	15.2	34	21	9	12	9	5.6	5.7	
BUFFALO	215	950.9	1016.1	23.6	13.2	-0.4	30.6	27	6.7	14	0	0	1.3	64	61	5	46	18	3	0	0	3.1	24	14.3	34	21	9	12	9	5.6	5.7	
NEW YORK U	440	1013.9	1016.9	26.5	17.1	-0.2	32.8	19	10.6	14	2	0	1.3	61	44	-32	13	9	2	0	0	1.3	23	13.0	34	19	10	13	7	5.4	6.4	



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State and Station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)						
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average relative humidity	Total	mm	Departure from normal	Greatest in 24 hours	No. of days		Snow, ice pellets	Resultant speed	Resultant direction				Speed	Direction				
												Max 37.2 °C or above	Min 0 °C or lower						25 mm. or more	With thunderstorms				Maximum depth on ground								
																									°C				°C	°C	°C	°C
WASHINGTON																																
OLYMPIA	59	1010.2	1017.5	24.3	10.3	17.3	2.3	33.9	5	6.1 20+	4	0	11.1	71	39	-1	18	6	1	0	0	0	1.4	22	8.0	24	9	10	4	16	5.6	
CLALLAMATE	55	1010.5	1017.9	20.7	12.8	17.9	1.9	32.2	4	9.4 14	1	0	10.0	77	14	-25	51	13	0	0	0	0	1.3	22	7.6	SW	9	6	8	16	6.5	
SEATTLE	122	1001.0	1017.3	23.7	12.2	17.9	2.5	33.3	5	8.3 14	1	0	8.3	57	19	-20	8	5	1	0	0	0	1.3	23	9.8	SW	9	10	10	10	5.2	
SEATTLE-TACOMA	718	931.9	1014.7	24.3	9.8	17.1	0.7	32.8	28	5.6 19+	0	0	7.2	54	31	-4	18	4	2	0	0	0	2.3	20	17.0	S	28	13	8	9	4.9	
SPokane	1206	881.1	1016.7	15.8	7.1	11.5	1.9	25.6	28	1.7 10+	0	0	0	7.2	79	-21	25	12	7	0	0	0	0	0	0	0	0	0	0	0	7.5	
STAMPEDE PASS	1289		27.7	13.7	20.7	35.6	5	10.0 15+	6	0	0	0	6.7	48	15	-14	6	7	0	0	0	0	1.8	28	10.7	SW	9	13	12	5	4.3	
WALLA WALLA	289		27.7	13.7	20.7	35.6	5	10.0 15+	6	0	0	0	6.7	48	15	-14	6	7	0	0	0	0	1.8	28	10.7	SW	9	13	12	5	4.3	
YAKIMA	321	976.6	1014.8	27.3	9.1	18.2	0.2	35.6	5	2.2 15	5	0	6.7	48	15	-10	3	1	0	0	0	0	0	0	0	0	0	0	0	0	3.6	
WEST INDIES																																
SAN JUAN P.R.	4	1014.9	1017.4	31.7	24.2	27.9	1.0	34.4	30	22.8 11	10	0	23.3	80	73	-71	23	18	6	0	0	0	3.4	9	11.6	E	21	4	18	8	5.8	
WEST VIRGINIA																																
BECKLEY	763	931.3	1017.9	24.8	13.1	18.9	-0.7	31.1	27	4.4 15	0	0	13.9	73	38	-70	13	6	7	0	0	0	1.0	26	10.3	26	26	3	14	13	6.8	
CHARLESTON	286	984.6	1018.3	27.9	15.3	21.6	-0.6	33.3	27	5.6 14	3	0	15.6	72	174	-33	32	10	10	0	0	0	1.1	23	9.4	20	2	2	13	8	9.0	
ELIZABETH	284	984.7	1017.7	25.4	11.2	18.3	0.4	30.6	27	1.1 14	0	0	0	16.1	174	-33	32	13	9	5	0	0	0	0	0	0	0	0	0	0	7.0	
ELIZABETH	284	984.7	1017.7	25.4	11.2	18.3	0.4	30.6	27	1.1 14	0	0	0	16.1	174	-33	32	13	9	5	0	0	0	0	0	0	0	0	0	0	6.5	
PARKERSBURG	187	984.2	1017.7	27.0	15.8	21.4	-0.9	32.8	27	6.7 14	1	0	0	16.1	42	-33	33	12	9	5	0	0	0	0	0	0	0	0	0	0	5.5	
WISCONSIN																																
GREEN BAY	208	989.5	1012.1	24.4	10.4	17.0	-0.5	32.2	26	3.9 8	1	0	11.1	66	69	-18	19	11	6	0	0	0	1.7	24	14.3	SW	10	7	12	11	6.3	
LA CROSSE	198	990.9	1014.9	25.9	13.3	19.7	-0.6	33.9	26	2.4 8	3	0	0	13.3	71	-60	27	12	7	0	0	0	1.7	24	14.3	SW	10	7	12	11	6.3	
MILWAUKEE	262	984.1	1015.3	26.0	11.6	18.0	0.1	33.3	26	5.6 13+	3	0	13.3	71	253	-43	27	8	6	0	0	0	1.3	23	11.6	S	11	5	13	10	6.0	
MILWAUKEE	205	990.9	1015.8	24.1	12.8	18.4	0.6	32.8	11	6.7 13+	1	0	13.2	69	114	-24	38	14	9	0	0	0	1.4	22	18.8	SW	17	6	13	11	6.1	
WYOMING																																
CASPER	1627	834.8	1013.6	26.3	8.4	17.0	0.9	33.3	23	2.2 2	2	0	4.4	48	36	-1	20	9	6	0	0	0	1.3	28	14.3	23	23	9	11	10	5.6	
CHEYENNE	1867	813.1	1012.9	24.1	8.2	16.1	-0.2	30.6	24+	1.7 2	0	0	3.3	49	16	-45	6	6	8	0	0	0	1.7	25	20.6	SW	19	12	8	10	5.5	
LARAMIE	1494	830.7	1013.9	25.2	8.7	16.9	0.7	32.2	23	2.4 12+	1	0	2.2	41	14	-45	3	4	4	0	0	0	1.5	25	17.0	SW	14	12	11	7	4.7	
SHERIDAN	1204	879.6	1014.7	24.4	7.4	15.9	-0.3	31.1	30	0.0 2	0	1	8.3	63	12	-64	6	8	8	0	0	0	1.0	24	17.9	SW	18	8	13	7	5.4	

# MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°F)

1977-1978

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
ALABAMA														
BIRMINGHAM	0	0	0	176	292	640	967	766	452	120	42	0	3457	2844
HUNTSVILLE	0	0	0	216	367	721	1062	855	514	129	60	0	3928	3302
MOBILE	0	0	0	73	149	439	731	551	268	16	0	0	2227	1684
MONTGOMERY	0	0	0	87	164	479	756	611	326	50	2	0	2465	2269
ALASKA														
ANCHORAGE	74	144	421	820	1486	1659	1349	1077	1100	771	401	308	9701	10911
ANNETTE	207	119	338	560	876	1077	951	721	800	590	534	216	7044	7033
BARRON	807	632	871	1382	2099	2256	2707	2223	2366	1904	1501	954	19172	20265
BARTER ISLAND	842	724	871	1296	2060	2238	2695	2200	2372	1910	1466	953	19022	19994
BETHEL	269	199	520	1112	1619	1673	1421	1463	1577	1026	645	590	12114	13203
BETHEL	88	157	663	1321	2205	2471	1728	1791	1158	607	341	1624	15925	15925
BJO DELTA	114	138	558	1149	2101	2372	1728	1634	1696	875	403	262	12360	13698
COLD BAY	334	344	461	805	1006	1095	972	1017	1053	808	750	535	9160	9865
FATREBANKS	101	221	573	1215	2186	2480	2013	1712	1576	898	454	304	13635	14345
GULKANA	217	221	573	1046	2105	2415	2152	1620	1502	1013	671	429	13966	13938
HOMER	322	273	490	813	1311	1476	1097	957	1022	800	635	472	9668	10364
JUNEAU	243	176	628	695	1062	1423	1233	922	954	483	525	317	8681	9007
KING SALMON	329	246	531	1029	1524	1687	1123	1214	820	605	458	10679	11582	11582
KODIAK	321	360	622	785	1026	1163	894	884	911	752	650	436	8628	8860
KOTZEBUE	204	183	466	1247	1845	1984	1612	1807	1985	1408	883	537	14317	16029
MC GRATH	111	134	551	1142	2115	2273	1862	1632	1597	949	497	399	13261	14487
NOME	274	272	598	1169	1619	1756	1338	1487	1682	1195	705	605	12700	14325
ST. PAUL ISLAND	499	420	508	862	1043	1045	968	1049	1216	896	803	615	9925	11119
TALKEETNA	149	178	551	958	1714	1830	1455	1159	1214	877	531	372	10984	11708
UNALAKLEET	219	207	646	1256	1784	1964	1453	1499	1622	1072	651	493	12532	14027
VALDEZ	280	365	496	741	1210	1422	1181	1008	1021	754	575	429	9442	10545
YAKUTAT	299	293	478	687	1121	1430	1208	847	950	748	617	445	9116	9533
ARIZONA														
FLAGSTAFF	0	19	157	432	715	843	1032	954	756	677	478	128	6200	7322
PHOENIX	0	0	0	0	42	155	254	172	67	25	0	0	715	1552
TUCSON	0	0	0	1	117	242	365	313	144	64	24	0	1270	1752
WINSTON	0	0	5	207	593	716	849	720	448	326	175	0	4039	4733
YUMA	0	0	0	0	35	142	241	136	34	16	0	0	604	1005
ARKANSAS														
FORT SMITH	0	0	0	142	377	773	1143	924	537	113	69	0	4078	3336
LITTLE ROCK	0	0	0	105	370	709	1025	862	436	68	48	0	3623	3354
NO. LITTLE ROCK														
CALIFORNIA														
BAKERSFIELD	0	0	0	12	162	237	311	241	82	124	13	0	1182	2185
RISHOP	0	0	64	169	455	704	796	622	464	619	151	1	3845	4313
BLUE CANYON	35	34	240	288	574	739	841	756	651	769	397	219	5543	5704
EUREKA U	302	200	231	342	408	427	403	404	347	415	357	264	4100	4679
FRESNO	0	0	0	46	302	417	415	343	143	182	19	0	1867	2650
LONG BEACH	0	0	0	4	35	125	265	223	88	104	12	5	861	1606
LOS ANGELES	1	0	0	19	62	120	195	184	116	168	46	3	914	1819
LOS ANGELES U	0	0	0	14	51	132	209	174	102	122	74	0	828	1245
MT. SHASTA R	21	45	246	459	762	873	834	730	614	653	436	185	5858	5890
OAKLAND	46	14	15	86	257	334	334	303	185	213	92	57	1936	2909
RED BLUFF	0	0	8	46	303	462	418	339	187	216	24	0	2003	2688
SACRAMENTO	0	0	17	68	309	472	451	362	235	269	46	0	2229	2843
SANBERG R	3	10	110	139	393	541	707	623	556	412	280	62	4036	4627
SAN DIEGO	0	0	0	0	37	55	117	52	52	43	0	0	429	1807
SAN FRANCISCO	109	48	55	139	284	385	361	335	238	295	161	135	2559	3042
SAN FRANCISCO U	197	116	93	139	187	304	304	269	188	254	177	177	3080	3080
SANTA MARIA	81	27	44	145	161	238	323	305	216	325	181	160	2206	3053
STOCKTON	0	0	2	41	284	451	449	358	191	212	16	0	2004	2806
COLORADO														
ALAMOSA	19	51	246	621	951	1252	1302	1103	900	647	516	126	7734	8609
COLORADO SPRINGS	2	22	73	419	784	938	1231	1036	741	479	386	98	6203	6473
DENVER	2	14	38	358	737	920	1206	936	665	435	335	87	5733	6016
GRAND JUNCTION	0	1	17	214	736	975	1098	852	561	373	210	9	5046	5605
PUEBLO	0	4	34	343	723	894	1228	1071	653	347	238	54	5519	5394
CONNECTICUT														
BRIDGEPORT	4	3	52	248	442	970	1181	1136	904	536	265	43	5784	5461
HARTFORD	1	8	112	399	610	1141	1276	1192	920	500	270	25	6404	6350
DELAWARE														
WILMINGTON	0	1	31	353	550	975	1165	1179	842	433	191	17	5737	4940
DIST. OF COLUMBIA														
WASHINGTON DULLES	1	2	23	339	521	985	1163	1066	748	317	123	14	5302	5010
WASHINGTON NATIONAL	0	0	1	196	406	829	1001	933	633	219	86	0	4304	4211
FLORIDA														
APALACHICOLA U	0	0	0	56	122	371	597	498	264	34	0	0	1942	1361
DAYTONA BEACH	0	0	0	23	63	241	352	356	132	5	0	0	1172	897
FORT MYERS	0	0	0	5	34	133	212	216	69	0	0	0	669	697
JACKSONVILLE	0	0	0	70	135	366	502	484	221	22	1	0	1807	1327
KEY WEST	0	0	0	0	0	36	92	85	0	0	0	0	223	64
LAKELAND U	0	0	0	10	48	198	306	277	89	2	0	0	936	678
MIAMI	0	0	0	0	0	58	123	99	34	0	0	0	320	206
ORLANDO	0	0	0	6	38	179	275	255	71	0	0	0	824	733
PENSACOLA	0	0	0	55	108	392	673	494	248	10	0	0	1980	1578
TALLAHASSEE	0	0	0	93	175	433	620	548	271	42	0	0	2182	1563
TAMPA	0	0	0	18	53	222	320	323	90	4	0	0	1039	718
WEST PALM BEACH	0	0	0	0	16	77	161	148	41	0	0	0	445	299
GEORGIA														
ATHENS	0	0	2	187	298	663	913	721	410	99	38	0	3331	2975
ATLANTA	0	0	4	178	313	701	966	714	412	137	57	0	3482	3093
AUGUSTA	0	0	0	153	215	575	797	659	380	93	33	0	2998	2997
COLUMBUS	0	0	0	110	186	530	781	634	334	63	11	0	2649	2378
MACON	0	0	0	121	202	554	754	617	321	62	12	0	2643	2240
ROME	0	0	4	216	329	734	1009	778	486	122	38	0	3716	3342
SAVANNAH	0	0	0	96	165	457	645	594	283	35	2	0	2277	1952
HAWAII														
HILO	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HONOLULU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KAHULUI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LIHUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°F)

1977-1978

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
<b>INDIANA</b>														
ROSE	9	32	145	362	758	853	959	744	500	488	329	74	5152	5833
LEWISTON	16	17	159	435	741	868	911	673	531	441	272	40	5118	5464
POCATELLO	1	38	189	447	831	990	1745	875	678	467	431	119	6211	7063
<b>ILLINOIS</b>														
CALUMET	0	0	2	205	422	848	1215	1046	667	117	43	0	4603	3823
CHICAGO O HARE	0	8	42	419	741	1224	1521	1346	918	418	244	46	7193	6497
CHICAGO MIDWAY	0	5	51	404	728	1242	1517	1346	1003	508	272	35	7110	6127
MOBILE	0	5	50	421	780	1337	1625	1417	986	423	279	13	7285	6355
PEORIA	0	6	39	410	734	1301	1595	1383	1006	405	272	14	7123	6398
ROCKFORD	0	20	88	488	849	1393	1658	1471	1111	419	259	29	7875	6845
SPRINGFIELD	0	2	21	340	661	1172	1521	1348	968	334	186	4	6557	5558
<b>INDIANA</b>														
EVANSVILLE	0	0	3	284	495	970	1377	1228	774	733	137	0	5506	4624
FORT WAYNE	0	11	62	424	694	1218	1509	1482	1051	485	224	26	7193	6209
INDIANAPOLIS	0	0	30	326	575	1104	1443	1313	873	792	150	4	6110	5377
SOUTH BEND	0	18	58	443	669	1206	1436	1401	1041	480	233	41	7028	6462
<b>IOWA</b>														
BURLINGTON	0	8	47	381	738	1285	1604	1365	984	392	199	17	7020	6149
DES MOINES	0	3	35	388	744	1289	1607	1442	988	427	181	9	7193	6209
DUQUOUE	1	43	121	500	924	1472	1778	1491	1122	521	268	41	8274	7277
SIoux CITY	0	9	55	428	878	1309	1778	1534	1007	487	244	33	7712	6953
WATERLOO	0	56	144	584	923	1490	1932	1610	1133	539	224	23	8660	7415
<b>KANSAS</b>														
CONCORDIA	0	0	23	291	703	1085	1512	1299	803	326	162	9	6213	5623
RODGE CITY	0	0	3	214	609	903	1330	1216	630	252	169	12	5343	5046
GOODYEAR	0	10	40	377	776	1033	1431	1263	782	456	315	50	6335	6119
TOPEKA	0	0	1	263	662	1075	1473	1240	824	280	156	6	5985	5243
WICHITA	0	0	6	178	558	926	1375	1149	663	194	112	5	5160	4687
<b>KENTUCKY</b>														
COVINGTON	0	2	32	391	586	1118	1440	1303	880	346	207	10	6315	5070
LEXINGTON	0	0	6	277	498	972	1338	1219	755	254	179	6	5504	4729
LOUISVILLE	0	0	6	295	472	935	1294	1145	720	221	142	1	5231	4640
<b>LOUISIANA</b>														
ALEXANDRIA	0	0	0	56	144	387	494	546	258	29	2	0	2116	1670
BATON ROUGE	0	0	0	30	136	367	687	539	236	22	2	0	2020	1498
LAKE CHARLES	0	0	0	45	113	342	646	556	191	2	0	0	1893	1465
NEW ORLEANS	0	0	0	72	260	549	933	746	374	61	30	0	3025	2167
SHREVEPORT	0	0	0	72	260	549	933	746	374	61	30	0	3025	2167
<b>MAINE</b>														
CARIBOU	56	93	408	657	944	1489	1702	1467	1364	894	333	156	9563	9632
PORTLAND	29	54	233	518	761	1219	1353	1276	1071	724	377	136	7749	7499
<b>MARYLAND</b>														
BALTIMORE	0	0	9	278	476	904	1101	1048	715	318	141	9	4999	4729
<b>MASSACHUSETTS</b>														
BLUE HILL OBS R	7	17	148	419	640	1109	1278	1188	997	618	284	50	6795	6235
BOSTON	0	4	85	304	498	948	1127	1057	885	480	209	18	5615	5621
WORCESTER	16	32	189	481	711	1202	1359	1255	1054	474	248	69	7330	6848
<b>MICHIGAN</b>														
ALPENA	49	156	206	587	902	1317	1506	1421	1245	860	331	191	8771	8518
DETROIT	0	5	45	392	628	1114	1367	1242	1038	572	217	42	6682	6228
DETROIT METRO	1	17	85	324	729	1218	1400	1357	1077	580	235	65	7288	6419
FLINT	7	35	97	498	761	1210	1444	1438	1178	632	238	87	7043	7043
GRAND RAPIDS	0	48	99	501	759	1204	1467	1413	1146	584	213	62	7433	6801
HOUGHTON LAKE	29	134	200	610	869	1347	1556	1513	1276	769	289	144	8736	8347
LANSING	7	50	116	314	757	1226	1461	1496	1215	627	244	84	7799	6904
MARQUETTE L	56	126	244	704	894	1329	1455	1295	1156	826	381	183	8443	8351
MUSKEGON	7	94	101	326	758	1196	1462	1374	1105	499	239	100	7461	6890
SAULT STE MARIE	111	246	335	621	910	1396	1675	1503	1377	889	333	270	9666	9193
<b>MINNESOTA</b>														
DULUTH	46	196	347	636	1101	1662	1852	1520	1217	794	324	176	9866	9756
INTERNATIONAL FALLS	34	246	367	666	1266	1908	2126	1745	1438	832	312	195	11133	10547
MINNEAPOLIS	0	35	145	346	1016	1565	1842	1448	1080	484	162	46	8511	8159
ROCHESTER	1	40	143	343	986	1570	1903	1581	1131	601	254	66	8839	8227
ST CLOUD	0	90	191	582	1103	1674	1911	1501	1169	683	238	92	9390	8868
<b>MISSISSIPPI</b>														
JACKSON	0	0	0	136	246	538	881	706	377	73	14	0	2971	2300
MERIDIAN	0	0	0	100	200	517	808	714	457	111	26	0	2941	2388
<b>MISSOURI</b>														
COLUMBIA REGIONAL	0	0	14	287	591	1053	1378	1206	842	265	161	3	5795	5078
KANSAS CITY	0	0	21	293	673	1094	1487	1266	842	291	172	6	6151	5357
ST JOSEPH	0	0	26	322	652	1100	1477	1301	898	305	159	3	6243	5440
ST LOUIS	0	0	11	291	601	1059	1401	1223	840	275	158	5	5864	4750
SPRINGFIELD	0	0	4	233	522	906	1396	1172	767	258	134	7	5395	4750
<b>MONTANA</b>														
BILLINGS	0	59	208	463	988	1380	1668	1366	933	545	357	97	8064	7265
GLASSBORO	22	140	292	583	1204	1752	2081	1610	1252	628	319	111	10008	8969
GRAY FALLS	5	115	280	527	1021	1502	1776	1410	966	622	421	109	8787	7652
HAVRE	20	95	236	531	1124	1640	1936	1473	1108	546	286	70	9074	8687
HELENA	22	92	270	593	1008	1367	1685	1175	808	412	361	87	7808	8190
KALISPELL	05	97	375	707	1081	1405	1397	1098	934	624	497	169	8469	8354
MILES CITY	0	98	200	485	1091	1574	1934	1499	1038	543	272	64	8759	7889
MISSOULA	59	76	310	637	1001	1245	1259	1090	771	464	311	171	7654	7931
<b>NEBRASKA</b>														
GRAND ISLAND	0	1	47	380	748	1185	1432	1395	914	409	205	25	6961	6420
LINCOLN	0	0	42	413	793	1230	1703	1447	972	410	187	27	7280	6218
NORFOLK	0	5	45	492	892	1318	1756	1477	965	471	187	28	7597	6981
NORTH PLATTE	0	34	96	458	869	1236	1662	1400	924	491	275	71	7918	6743
OMAHA	0	3	28	361	754	1196	1637	1375	910	372	190	17	6813	6049
OMAHA (NORTH)	0	3	41	394	803	1268	1702	1437	963	432	185	23	6601	6001
SCOTTSBLUFF	0	23	72	407	800	1131	1444	1199	752	458	206	54	6626	6774
VALENTINE	0	35	122	494	914	1397	1760	1526	992	418	254	72	8190	7300

# MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°F)

1977-1978

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
NEVADA														
ELKO	0	27	164	430	773	933	1009	845	617	583	398	135	5914	7483
ELY	0	43	238	535	850	1056	1101	959	742	710	521	172	6942	7814
LAS VEGAS	0	0	0	4	220	399	522	356	168	91	10	0	1781	2601
RENO	10	12	154	392	687	821	858	739	544	582	387	113	5299	6022
WINNEMUCCA	2	28	203	464	729	798	894	762	566	523	335	96	5380	6629
NEW HAMPSHIRE														
CONCORD	37	58	222	551	760	1360	1466	1435	1138	725	270	72	8094	7360
MT WASHINGTON OBS	538	551	768	1091	1233	1796	1924	1855	1805	1393	861	634	14449	13878
NEW JERSEY														
ATLANTIC CITY	2	0	20	311	457	910	1069	1146	826	463	256	24	5492	4946
ATLANTIC CITY U	0	0	11	267	477	852	1043	1031	776	455	302	41	5265	4693
NEWARK	0	0	50	319	527	975	1168	1099	814	411	170	13	5566	5034
TRENTON U	0	0	38	321	519	944	1134	1080	800	418	189	15	5458	4947
NEW MEXICO														
ALBUQUERQUE	0	0	1	192	551	757	870	713	454	215	175	2	3930	4292
CLAYTON	0	3	17	268	637	806	1148	968	627	314	236	36	5060	5207
ROSWELL	0	0	0	68	349	551	895	593	294	45	39	3	2837	3697
NEW YORK														
ALBANY	7	51	156	471	666	1179	1340	1306	1051	642	245	84	7198	6888
BINGHAMTON	15	61	166	560	736	1246	1415	1392	1150	699	248	100	7788	7285
BUFFALO	0	40	110	473	646	1146	1376	1378	1130	670	282	61	7337	6927
NEW YORK U	0	0	56	307	524	903	1140	1051	797	394	179	13	5364	4848
NEW YORK KENNEDY	0	7	68	344	530	947	1104	1062	805	422	197	7	5493	5184
NEW YORK LA GUARDIA	0	0	59	309	524	901	1119	1051	812	436	203	10	5440	4909
ROCHESTER	0	44	113	477	634	1127	1298	1300	1087	634	220	63	7066	6719
SYRACUSE	14	60	121	444	624	1162	1348	1322	1097	677	252	92	7213	6678
NORTH CAROLINA														
ASHEVILLE	0	0	14	331	466	868	1101	878	586	241	139	0	4624	4227
CAPE HATTERAS R	0	0	0	103	196	504	704	813	455	152	60	0	2987	2731
CHARLOTTE	0	0	3	215	356	690	862	785	473	140	72	0	3596	3218
GREENSBORO	0	0	7	307	459	821	1039	927	605	245	131	4	4545	3825
RALEIGH	0	0	4	283	411	768	914	883	514	196	63	0	4056	3514
WILMINGTON	0	0	0	144	231	537	709	736	419	89	30	0	2895	2433
NORTH DAKOTA														
BISMARCK	17	111	246	574	1153	1687	2066	1564	1143	663	257	105	9586	9044
FARGO	7	95	211	549	1178	1817	2061	1721	1284	668	209	90	9890	9271
WILLISTON	8	131	267	577	1212	1759	2091	1600	1148	655	252	91	9791	9161
OHIO														
AKRON	4	21	68	458	632	1130	1413	1366	1013	533	247	51	6936	6224
CINCINNATI ABBE OB	0	1	12	327	542	1075	1336	1210	796	314	178	7	5758	4844
CLEVELAND	4	26	60	378	592	1103	1387	1343	1005	534	218	43	6693	6154
COLUMBUS	1	17	36	394	594	1091	1420	1346	938	424	223	23	6077	5702
DAYTON	0	7	45	403	605	1108	1428	1339	927	395	205	15	6477	5641
MANSFIELD	0	24	63	442	643	1159	1442	1380	1028	530	259	39	7018	5818
TOLEDO	0	29	71	481	713	1241	1490	1484	1121	573	243	43	7492	6381
YOUNGSTOWN	0	28	65	429	652	1142	1403	1378	1030	582	273	86	7077	6426
OKLAHOMA														
OKLAHOMA CITY	0	0	0	115	420	766	1192	990	693	90	64	0	4130	3695
TULSA	0	0	1	118	412	801	1236	989	541	110	67	0	4275	3880
OREGON														
ASTORIA	190	82	231	403	606	646	643	524	551	482	389	161	4908	5295
BURNS U	0	86	278	499	903	1020	1075	923	656	484	189	189	6815	7212
EUGENE	48	20	178	385	637	675	690	576	508	503	375	102	4717	4739
MEDFORD	14	0	105	360	673	694	646	571	444	451	262	44	4268	4930
PENDLETON	20	35	200	461	792	927	1011	714	593	504	322	46	5625	5240
PORTLAND	40	19	131	339	644	707	764	561	485	430	317	58	4495	4792
SALEM	57	23	181	392	606	670	727	547	513	476	316	73	4559	4852
SEXTON SUMMIT R	124	74	329	477	805	854	832	745	618	771	557	254	6442	6430
PENNSYLVANIA														
ALLENTOWN	0	10	56	356	623	1077	1238	1190	871	430	189	15	6055	5827
ERIE	0	51	110	477	630	1131	1395	1408	1143	488	303	84	7435	6851
HARRISBURG	0	5	35	377	562	1029	1196	1175	810	414	173	17	5793	5224
PHILADELPHIA	0	0	24	328	558	998	1139	1121	797	423	161	10	5559	4865
PITTSBURGH	11	41	78	442	583	1043	1307	1229	860	412	209	38	6253	5930
PITTSBURGH U	2	7	30	371	547	1002	1285	1187	858	417	203	24	5933	5278
SCRANTON	14	37	119	505	653	1090	1252	1279	984	562	240	73	6068	6277
WILLIAMSPORT	4	15	46	444	588	1126	1300	1239	938	495	190	28	6413	5981
RHODE ISLAND														
BLOCK ISLAND	0	3	84	301	508	899	1104	1073	946	624	398	72	5972	5771
PROVIDENCE	0	6	103	368	568	1030	1231	1192	964	542	238	26	6268	5972
SOUTH CAROLINA														
CHARLESTON	0	0	0	112	175	459	663	616	309	52	18	0	2404	2146
CHARLESTON U	0	0	0	93	148	447	660	601	305	36	9	0	2299	1904
COLUMBIA	0	0	1	192	277	629	850	741	418	109	37	0	3254	2598
GRNVILLE-SPRTNBRG	0	0	2	184	322	681	916	787	486	143	88	0	3609	3163
SOUTH DAKOTA														
ABERDEEN	2	39	172	569	1128	1669	2070	1650	1228	659	226	74	9486	8617
HURON	0	27	129	506	1002	1530	2007	1620	1099	624	247	89	8880	8055
RAPID CITY	1	48	163	494	944	1330	1669	1383	912	588	312	91	7935	7924
SIOUX FALLS	0	22	125	530	1000	1503	1957	1576	1063	613	252	78	8719	7838
TENNESSEE														
BRISTOL	0	0	19	359	455	913	1207	1005	620	286	130	4	4998	4306
CHATTANOOGA	0	0	5	233	359	753	1072	821	467	114	60	0	3884	3505
KNOXVILLE	0	0	3	242	374	764	1097	846	487	148	74	0	4035	3478
MEMPHIS	0	0	0	123	313	640	995	835	454	74	67	0	3481	3227
NASHVILLE	0	0	3	255	425	813	1152	996	556	164	92	0	4456	3696
OAK RIDGE	0	0	10	352	448	890	1161	946	577	232	110	2	4728	3944

# MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°F)

1977-1978

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
<b>TEXAS</b>														
ABILENE	^	0	0	50	314	500	938	730	337	37	34	0	2946	2610
AMARILLO	^	0	1	150	522	768	1107	972	551	136	139	6	4352	4183
AUSTIN	^	0	0	16	130	354	750	561	225	15	7	0	2064	1737
ARLINGTON	^	0	0	0	25	101	342	286	66	6	0	0	826	630
CORPUS CHRISTI	^	0	0	4	56	160	502	382	101	17	3	0	1722	920
DALLAS FT WORTH	^	0	0	55	257	536	967	786	346	54	41	0	3037	2382
DEL RIO	^	0	0	0	126	294	964	422	111	3	0	0	1526	1523
EL PASO	^	0	0	56	320	472	803	449	260	57	22	0	1987	2678
GALVESTON	^	0	0	0	63	238	406	501	250	16	2	0	1636	1224
HOUSTON INTERCON	^	0	0	34	150	365	752	553	250	33	17	0	2154	1434
LUBBOCK	^	0	0	80	373	611	1014	864	419	75	84	0	3533	2621
MIDLAND	^	0	0	47	295	478	823	586	245	49	30	0	3000	2345
PORT ARTHUR	^	0	0	16	112	321	662	497	184	14	0	0	1866	1518
SAN ANGELO	^	0	0	44	249	390	818	588	286	31	21	0	2427	2240
SAN ANTONIO	^	0	0	19	138	360	667	521	192	27	4	0	1928	1570
VICTORIA	^	0	0	8	86	261	620	467	166	23	1	0	1632	1227
WACO	^	0	0	24	173	417	839	639	284	19	19	0	2412	2058
WICHITA FALLS	^	0	0	64	345	645	1078	881	394	73	50	0	3330	2904
<b>UTAH</b>														
MILFORD	^	16	110	399	782	898	973	794	611	533	377	42	5535	6412
SALT LAKE CITY	^	11	73	284	670	835	880	697	522	433	293	36	4732	5983
<b>VERMONT</b>														
BURLINGTON	24	53	207	564	740	1314	1539	1547	1202	781	225	90	8286	7876
<b>VIRGINIA</b>														
LYNCHBURG	^	0	12	325	464	887	1103	972	637	237	125	6	4768	4233
NORFOLK	^	0	0	150	321	661	860	902	580	235	72	3	3792	3488
RICHMOND	^	0	4	259	401	784	974	964	627	235	88	5	4361	3929
ROANOKE	^	0	18	351	496	896	1147	989	637	261	112	4	4910	4307
WALLERS ISLAND	^	0	7	259	436	818	968	963	687	308	196	9	4631	4240
<b>WASHINGTON</b>														
OLYMPIA	166	90	242	502	734	829	711	596	587	502	367	91	5417	5320
QUILLAYUTE	240	142	290	479	679	767	680	585	601	516	434	187	5600	5951
SEATTLE	78	41	185	387	609	704	657	522	487	423	307	70	4470	4727
SEATTLE-TACOMA	34	43	178	390	625	701	631	525	498	447	323	78	4473	5185
SPokane	57	56	289	563	921	1197	1154	862	701	576	412	101	6889	6835
STAMPAENE PASS R	372	192	536	755	1105	1243	1150	1011	934	863	788	371	9300	9400
WALLA WALLA U	10	18	133	353	677	846	955	650	478	388	207	25	4741	4825
YAKIMA	32	24	217	491	862	968	992	753	588	464	311	73	5775	6009
<b>WEST VIRGINIA</b>														
BECKLEY	8	11	67	479	564	997	1319	1211	801	366	216	56	6795	5615
CHARLESTON	^	2	19	357	482	919	1249	1138	691	258	187	23	5275	4590
ELKINS	22	17	59	503	600	1111	1401	1349	877	465	265	70	6747	5975
HUNTINGTON	^	0	35	435	516	919	1232	1122	678	254	164	12	5223	4624
PARKERSBURG U	^	0	12	351	516	989	1292	1185	788	338	158	21	5662	4817
<b>WISCONSIN</b>														
GREEN BAY	3	64	162	544	942	1454	1658	1500	1227	733	279	107	8673	8098
LA CROSSE	1	40	122	488	936	1483	1804	1515	1106	665	209	36	8305	7417
MADISON	^	95	161	533	925	1404	1688	1466	1096	608	269	59	8310	7720
MILWAUKEE	9	47	106	485	827	1302	1531	1356	1086	667	335	83	7833	7444
<b>WYOMING</b>														
CASPER	3	51	164	492	945	1240	1481	1191	854	605	471	107	7604	7555
CHEYENNE	21	74	150	511	910	1109	1324	1115	840	627	491	157	7328	7255
LANDER	2	50	183	586	986	1193	1466	1192	823	585	495	127	7869	7869
SHERIDAN	12	73	233	526	1001	1452	1654	1323	951	543	463	153	8386	7708



# COOLING DEGREE DAYS

(Base 65°F.)

JUNE 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM	370	243	469	HILLO	351	1681	1321	GRAND ISLAND	293	350	265	CHARLESTON	414	775	730
HUNTSVILLE	374	243	604	HONOLULU	410	2092	1758	LACONIA	230	288	313	CHARLESTON U	468	858	833
MOBILE	496	249	989	KAMULUI	430	2028	1967	MORFORD	244	304	232	COLUMBIA	369	598	733
MONTGOMERY	458	242	801	LIHUE	362	1672	1533	NORTH PLATTE	174	196	191	GRNVILLE-SPRTNBAG	319	451	520
ALASKA				LOAHU				OMAHA	287	366	332				
ANCHORAGE	0	0	0	ROISE	64	71	105	OMAHA (NORTH)	252	317	254	SOUTH DAKOTA			
ANNETTE	1	1	0	LEWISTON	112	112	102	SCOTTSDUFF	160	214	134	ABERDEEN	100	121	120
BARRON	0	0	0	POCATELLO	28	28	49	VALENTINE	163	190	152	HURON	119	140	160
BARTER ISLAND	0	0	0					NEVADA				RAPID CITY	99	108	125
BETHEL	0	0	0					ELKO	9	9	28	SIOUX FALLS	193	185	175
BETTLES	0	0	0	ILLINOIS				ELY	7	7	82				
BIG DELTA	0	0	0	CAIRO	415	677	603	LAS VEGAS	672	1006	891	TENNESSEE			
COLD BAY	0	0	0	CHICAGO J MARE	132	192	173	RENO	16	16	46	BRISTOL	204	283	335
FAIRBANKS	0	0	0	CHICAGO MIDWAY	160	250	244	WINNEMUCCA	31	36	61	CHATTANOOGA	350	562	537
GULKANA	0	0	0	HOLINE	202	290	257					KNOXVILLE	319	486	523
HOMER	0	0	0	PEORIA	208	289	282					MEMPHIS	452	815	692
JUNEAU	0	0	0	ROCKFORD	160	235	194	NEW HAMPSHIRE				NASHVILLE	344	547	549
KING SALMON	0	0	0	SPRINGFIELD	289	405	337	CUNCORD	83	129	57	OAK RIDGE	234	326	444
KONIAN	0	0	0					MT WASHINGTON OBS	0	0	0				
KOTZFBUE	0	0	0	INDIANA								TEXAS			
KR GRATH	0	0	0	EVANSVILLE	361	502	438	NEW JERSEY				ABILENE	355	1183	838
NOME	0	0	0	FORT WAYNE	169	229	206	ATLANTIC CITY	143	162	193	AMARILLO	324	471	417
ST. PAUL ISLAND	0	0	0	INDIANAPOLIS	282	396	290	ATLANTIC CITY U	72	81	148	AUSTIN	320	1181	1042
TALKEETNA	0	0	0	SOUTH BEND	173	243	183	NEWARK	217	276	244	BROWNSVILLE	605	1684	1632
UNALASKA	0	0	0					TRENTON U	207	254	239	CORPUS CHRISTI	561	1414	1359
VALDEZ	0	0	0	IOWA								DALLAS FT WORTH	524	966	823
YAKUTAT	0	0	0	BURLINGTON	203	285	286	NEW MEXICO				DEL RIO	571	1396	1332
				DES MOINES	251	340	250	ALBUQUERQUE	324	369	364	EL PASO	359	960	744
				DUBUQUE	117	189	154	CLAYTON	177	211	181	GALVESTON	333	1040	1083
				SIOUX CITY	210	264	200	ROSKELL	436	781	514	HOUSTON INTERCON	471	994	1070
ARIZONA				WATERLOO	179	258	181					LUBBOCK	426	733	550
FLAGSTAFF	25	75	15					NEW YORK				MIDLAND	401	838	771
PHOENIX	787	1443	1119	KANSAS				ALBANY	70	117	141	PORT ARTHUR	355	1219	1027
TUCSON	630	1043	905	CONCORDIA	303	393	344	RINGHAMTON	68	126	82	SAN ANGELO	467	1053	978
YUCLA	783	1476	1368	DOODGE CITY	327	440	380	RUFFALO	91	143	93	SAN ANTONIO	537	1113	1114
				GOODLAND	192	211	205	NEW YORK U	269	286	256	VICTORIA	528	1190	1176
ARKANSAS				TOPEKA	298	420	394	NEW YORK KENNEDY	185	222	171	WACO	388	1152	971
FORT SMITH	357	590	628	WICHITA	366	514	496	NEW YORK LA GUARDIA	172	216	248	WICHITA FALLS	481	917	841
LITTLE ROCK	424	790	616					ROCHESTER	141	128	125				
NO. LITTLE ROCK	390	685	630	KENTUCKY				SYRACUSE	92	141	121	UTAH			
CALIFORNIA				COVINGTON	231	298	312					HILFORD	66	64	98
BAKERSFIELD	451	744	610	LEXINGTON	257	345	364	NORTH CAROLINA				SALT LAKE CITY	167	188	154
BISHOP	167	192	254	LOUISVILLE	323	453	376	ASHEVILLE	188	243	248				
ALIE CANYON	23	24	20					CAPE HATTERAS R	271	352	409	VERMONT			
BUREAU U	0	0	0	LOUISIANA				CHARLOTTE	343	516	513	BURLINGTON	66	143	84
PRINCE U	34	530	442	BATON ROUGE	512	1038	983	GREENSBORO	263	354	428				
LONG BEACH	162	247	158	LAKE CHARLES	480	1007	1034	RALEIGH	330	482	432	VIRGINIA			
LOS ANGELES	166	247	94	NEW ORLEANS	493	1120	1030	WILMINGTON	372	627	651	LYNCHBURG	237	334	931
LOS ANGELES U	212	419	225	SHREVEPORT	472	867	874					NORFOLK	286	391	409
MT SHASTA R	13	13	34					NORTH DAKOTA				RICHMOND	302	426	405
OAKLAND	3	40	21	MAINE				BISMARCK	50	63	97	ROANOKE	243	329	298
REN ALIFF	355	540	515	CARIBOU	35	73	8	FARGO	60	117	99	WALLOPS ISLAND	158	181	256
SACRAMENTO	157	255	309	PORTLAND	22	28	27	WILLISTON	86	79	73				
SAN DIEGO R	90	115	88									WASHINGTON			
SAN DIEGO	194	249	118	MARYLAND				OHIO				OLYMPIA	42	44	14
SAN FRANCISCO	0	24	4	BALTIMORE	260	323	295	CINCINNATI	143	197	168	QUILLAYUTE	7	7	0
SAN FRANCISCO U	0	40	5	HOUSTON	122	162	137	CLEVELAND	253	354	367	SEATTLE	44	46	28
SANTA MARIA	0	12	5	MASSACHUSETTS				COLUMBUS	170	223	164	SEATTLE-TACOMA	66	70	11
STOCKTON	250	393	314	BLUE HILL OBS R	72	103	79	DAYTON	190	249	230	SPOKANE	42	42	47
				WORCESTER	57	89	74	MANSFIELD	219	286	268	STAMPEDE PASS R	12	12	0
COLORADO								TOLEDO	146	196	220	WALLA WALLA U	161	188	154
ALAMOSA	8	8	9	MICHIGAN				YOUNGSTOWN	128	186	186	YAKIMA	73	73	98
COLORADO SPRINGS	143	147	97	ALPINE	68	107	33		162	139	131				
DENVER	152	144	110	DETROIT	149	229	192	OKLAHOMA				WEST INDIES			
GRAND JUNCTION	258	283	254	DETROIT METRO	122	185	160	OKLAHOMA CITY	378	631	565	SAN JUAN P.R.	526	2775	2240
DURBOLO	217	247	232	FLINT	95	146	114	TULSA	388	648	574	WEST VIRGINIA			
CONNECTICUT				GRAND RAPIDS	123	185	141					BECKLEY	96	134	122
BRIDGEPORT	93	112	128	HOUGHTON LAKE	49	93	59	OREGON				CHARLESTON	207	311	338
HARTFORD	199	236	124	LANSING	110	163	137	ASTORIA	0	0	0	ELKINS	76	90	109
				MARQUETTE U	53	78	15	BURNS U	12	12	30	HUNTINGTON	261	364	353
DELAWARE				MUSKOGEE	57	86	100	EUGENE	34	36	25	PARKERSBURG U	195	284	315
WILMINGTON	188	236	244	SAULT STE MARIE	9	36	11	LEFORD	93	97	84				
								PENDLETON	93	94	106	WISCONSIN			
DIST. OF COLUMBIA				MINNESOTA				PORTLAND	69	72	45	GREEN BAY	71	114	88
WASHINGTON DULLES	219	343	245	DULUTH	34	51	14	SALEM	63	69	26	LA CROSSE	116	177	182
WASHINGTON NATIONAL	348	485	404	INTERNATIONAL FALLS	41	65	30	SEXTON SUMMIT R	28	29	7	MADISON	92	148	114
				MINNEAPOLIS	138	210	148					MILWAUKEE	97	137	88
				ROCHESTER	112	151	127	PACIFIC AREA							
FLORIDA				ST. CLOUD	80	119	93	GUANAGUAC R	444	2519	2429	WYOMING			
APALACHICOLA U	438	847	978					JOHNSTON	444	2495	2313	CASPER	72	74	60
DAYTONA BEACH	499	1455	1482	MISSISSIPPI				KORD R	510	3056	2973	CHEYENNE	45	44	45
FORT MEYERS	508	1510	1483	JACKSON	456	785	840	KWAJALEIN	509	3073	2911	LANDER	56	56	36
JACKSONVILLE	441	919	952	MERIDIAN	418	656	821	MAJURO	482	2931	2914	SHERIDAN	30	31	58
KEY WEST	580	1793	2147					PAGO PAGO	448	2857	2726				
LAKELAND U	504	1204	1326	MISSOURI				PUNAPE R	476	3034	2837				
MIAMI	515	1541	1461	COLUMBIA REGIONAL	266	382	371	TRUK MOEN ISLAND	515	3106	2935				
MIAMI LAKES	541	1594	1771	KANSAS CITY	300	405	366	YAKE	585	2507	2455				
PEWEEVILLE	522	908	1031	ST JOSEPH	315	430	494		498	2945	2930				
TALLAHASSEE	459	837	977	ST LOUIS	295	439	461								
TAMPA	529	1289	1345	SPRINGFIELD	249	359	394	PENNSYLVANIA							
WEST PALM BEACH	506	1455	1517					ALLENTOWN	196	261	194				
				MONTANA				ERIE	94	126	81				
GEORGIA				BILLINGS	71	83	67	HARRISBURG	142	231	283				
ATHENS	392	641	578	GLASGOW	47	54	76	PHILADELPHIA	244	301	290				
ATLANTA	346	532	514	GREAT FALLS	36	36	36	PITTSBURGH	178	247	180				
AUGUSTA	402	626	705	HAYNE	52	54	65	SCRANTON	84	136	145				
COLUMBUS	473	819	771	HELENA	37	40	20	WILLIAMSPORT	134	197	180				
MACON	481	671	854	KALISPELL	9	9	9								
ROME	367	542	607	MILES CITY	105	127	133	RHODE ISLAND							
SAVANNAH	456	691	851	MISSOULA	14	14	14	BLOCK ISLAND	42	42	25				
								PROVIDENCE	126	151	86				

# STORM SUMMARY

JUNE 1978

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE	
								PROP	ERTY			PROP	ERTY			PROP	ERTY			PROP	ERTY			PROP	ERTY			PROP	ERTY
Alabama	3	3			4						1	5		1		4													1
Alaska																													4
Arizona											3	5	4	1		2													
Arkansas	6	5			4			3				5		2	1	2													
California	*																												
Colorado	4	3						7	7					1		14	5												4
Connecticut												4																	
Delaware											1	6		3	33	5													
Florida	12	10		1	5				4																				
Georgia	3	2		2	4			3	3			4	4																
Hawaii																													1
Idaho								5				4				4													
Illinois	5	1	1		6			2	2		8	6	2		1	6										1	1		6
Indiana	10	5			8							4		1															
Iowa	8	7		1	6			7	8		3	7	6	1	9														6
Kansas	9	5	16	3	5			6	7		3	6	6			5													
Kentucky												4		1															
Louisiana	1	1										4			2	2													4
Maine												4																	
Maryland & DC	3	2			5				3		4	7	4		1	4													4
Massachusetts	*																												
Michigan	3	3			4			5	C		5	6	C	1	1	1													
Minnesota	2	2			4			5	6			6	6		3	5													
Mississippi	*																												
Missouri								3	4		1	5	3	1	2	5													
Montana	3	2						6	6			5		1															
Nebraska	7	4		8	6			6	7		1	6	5			6	5												
Nevada												5																	
New Hampshire	2	2			3										2	5													
New Jersey									6																				
New Mexico	1	1						5	4			4				4													
New York	2	1			6			4	C		3	4	2	2		4													
North Carolina	5	3		4	6			5	5			5	4	2		4													
North Dakota	8	4			5			5	4			5	4																
Ohio	11	5		7	7						8	7	C	5	8	6													
Oklahoma	1	1			4			7	6		1	6		2	1	5													
Oregon															1														
Pacific	*																												
Pennsylvania	7	3		3	6			1	1		8	5	2		8	5	2												
Puerto Rico	*																												
Rhode Island	*																												
South Carolina	1	1			4							5	3			4													
South Dakota	14	6		15	7			6	6		4	5	6																
Tennessee												5																	
Texas	10	5			4			7	6			6	3			5										1	3		
Utah	*																												
Vermont												5	C			3													
Virginia	1	1			4			5	6			6	3			5													
Virgin Islands	*																												
Washington	1	1			4											4													
West Virginia	1	1			5						1	5	2			5										2	4		
Wisconsin	3	3			6			2	2		3	6	2	1		2													
Wyoming	2	2			4			6	C			5																	



## Average monthly values

JUNE 1978

BOISE, ID 915 MB										BOTHWILLE, LA 1010 MB										BROWNSVILLE, TX 1013 MB										BUFFALO, NY 991 MB										CAPE MATTERAS, NC 1018 MB									
59C	3n	871	11.9	4.4	1.4	1.9	3n	1	24.9	23.1	14.5	1.1	3n	7	24.8	22.9	15	1.6	3n	218	14.8	11.7	22	1.7	3n	164	21.0	18.2	31	1.5																			
1000								30	142	130	14.5	1.9	3n	122	25.7	24.5	15	1.6	3n	576	15.1	9.3	26	4.5	3n	606	19.4	12.3	27	2.8																			
950								30	193	23.1	18.4	17	1.9	3n	574	22.8	20.8	16	7.4	3n	576	15.1	9.3	26	4.5	3n	606	19.4	12.3	27	2.8																		
900	3n	1.013	15.3	3.9	1.6	1.9	3n	1.064	20.1	14.7	16	3.0	3n	1.045	20.4	15.9	16	7.8	3n	1.032	12.9	6.5	27	7.0	3n	1.070	16.8	9.3	28	3.1																			
850	3n	1.497	14.5	7.3	1.4	1.9	3n	1.555	16.9	11.6	16	3.2	3n	1.937	17.7	11.6	16	6.4	3n	1.511	12.0	6.3	28	8.5	3n	1.575	13.9	6.8	29	3.6																			
800	3n	2.007	11.2	-1.6	3.7	2.2	3n	2.071	14.4	8.3	16	2.9	3n	2.054	15.1	7.2	16	5.1	3n	2.013	7.6	-1.9	28	8.8	3n	2.055	11.2	3.1	29	4.0																			
750	3n	2.542	7.7	-4.9	2.9	2.2	3n	2.616	8.8	2.6	15	2.8	3n	2.599	9.2	2.5	14	4.8	3n	2.563	7.4	-3.4	28	10.5	3n	2.602	7.4	-1.8	29	4.1																			
700	3n	3.106	3.0	-7.7	2.7	2.4	3n	3.188	1.1	-2.1	16	1.9	3n	3.174	9.0	-2.3	16	5.2	3n	3.104	2.6	-11.8	28	10.8	3n	3.169	5.6	-5.6	28	4.9																			
650	3n	3.701	-1.2	-11.9	2.5	2.0	3n	3.796	4.7	-6.3	22	1.5	3n	3.784	5.3	-7.8	10	2.7	3n	3.701	-3.3	-16.9	28	11.8	3n	3.772	2.5	-10.3	28	5.5																			
600	3n	4.335	-5.5	-16.2	2.4	2.0	3n	4.444	6.6	-10.6	26	1.7	3n	4.434	1.0	-13.1	10	2.3	3n	4.337	-4.7	-20.9	28	12.7	3n	4.415	-5.8	-15.8	28	6.4																			
550	3n	5.012	-10.2	-21.4	2.4	2.0	3n	5.137	-3.7	-14.5	20	1.5	3n	5.130	-2.2	-18.2	08	2.0	3n	5.018	-8.2	-24.9	28	13.9	3n	5.105	-6.8	-19.0	28	6.9																			
500	3n	5.738	-15.4	-26.8	2.3	1.9	3n	5.864	-8.2	-21.5	20	1.3	3n	5.851	-7.0	-21.8	03	1.9	3n	5.751	-12.1	-29.5	28	15.1	3n	5.848	-9.2	-24.1	27	7.7																			
450	3n	6.522	-20.9	-33.0	2.3	1.9	3n	6.652	-13.1	-27.0	18	1.2	3n	6.636	-11.2	-27.9	9.5	1.9	3n	6.543	-18.1	-32.4	28	16.4	3n	6.635	-12.9	-29.4	28	8.5																			
400	3n	7.385	-24.2	-39.4	2.4	1.9	3n	7.582	-19.9	-32.2	29	1.4	3n	7.587	-18.2	-33.1	31	1.6	3n	7.510	-24.4	-37.4	28	17.6	3n	7.538	-20.4	-35.2	28	11.0																			
350	3n	8.238	-34.5	-44.6	2.4	1.7	3n	8.505	-25.9	-38.2	28	1.4	3n	8.574	-25.1	-39.7	31	3.0	3n	8.377	-31.7	-43.7	28	19.4	3n	8.516	-27.4	-41.3	28	13.0																			
300	3n	9.192	-42.6		2.4	1.7	3n	9.601	-34.4	-46.2	27	1.5	3n	9.672	-33.6	-47.1	32	4.4	3n	9.448	-39.8	-47.6	28	22.7	3n	9.604	-35.9	-48.0	28	13.9																			
250	3n	10.599	-49.6		2.5	21.2	3n	10.970	-44.2		27	7.5	29	10.924	-43.6		31	4.4	28	10.570	-47.6		28	26.1	3n	10.846	-45.6		29	16.1																			
200	3n	12.046	-53.1		2.5	19.9	3n	12.371	-53.4		27	9.0	29	12.398	-54.9		31	5.6	28	12.120	-54.9		28	27.0	3n	12.296	-56.6		29	18.8																			
150	3n	13.297	-53.4		2.5	17.6	3n	13.612	-61.0		27	8.6	29	13.629	-61.2		31	4.6	28	13.360	-57.1		28	24.9	3n	13.135	-60.9		29	15.8																			
100	3n	18.877	-52.1		2.5	15.5	29	14.156	-67.0		27	9.6	29	14.172	-67.2		30	4.6	28	13.943	-57.4		28	19.0	3n	14.085	-66.4		29	15.8																			
125	3n	15.064	-55.3		2.5	11.6	29	15.248	-70.0		29	6.4	29	15.255	-73.1		29	3.3	28	14.093	-58.1		28	14.8	3n	15.159	-65.1		29	10.7																			
100	3n	16.840	-57.6		2.6	7.8	29	16.577	-70.9		29	6.2	29	16.558	-73.7		28	2.6	28	16.649	-59.7		27	10.7	3n	16.556	-65.4		30	8.6																			
75	3n	17.888	-58.4		2.6	2.9	29	17.897	-68.8		08	6.3	29	17.873	-69.8		08	7.2	28	17.888	-59.2		28	5.3	3n	17.913	-65.0		30	2.1																			
50	3n	18.726	-58.1		2.6	1.4	29	18.703	-65.8		08	4.1	29	18.676	-67.2		09	9.2	28	18.727	-59.2		28	3.5	3n	18.731	-63.2		30	2.3																			
25	3n	19.699	-57.0		3.4	1.1	29	19.661	-61.1		08	2.8	29	19.620	-64.1		08	13.5	28	19.679	-56.8		28	4.4	3n	19.679	-61.1		30	4.1																			
0	3n	20.858	-55.4		0.7	2.0	29	20.781	-55.3		08	10.2	29	20.743	-60.2		09	11.5	28	20.862	-55.9		08	1.1	28	20.828	-57.8		09	5.3																			
50	3n	22.269	-53.4		0.8	3.8	29	22.191	-55.6		08	11.3	24	22.148	-60.0		09	14.1	28	22.293	-53.9		09	3.7	28	22.245	-54.8		09	7.9																			
25	3n	24.153	-50.7		0.8	5.8	29	24.043	-51.3		09	11.4	22	24.000	-51.1		09	14.9	28	24.162	-50.6		09	5.8	28	24.099	-51.6		09	8.6																			
0	3n	25.352	-48.7		0.7	7.0	29	25.227	-49.3		09	11.0	22	25.193	-48.8		09	13.8	26	25.301	-49.8		09	7.5	26	25.281	-49.5		09	8.4																			
25	3n	26.823	-46.4		0.7	8.7	29	26.700	-48.2		08	10.7	21	26.671	-45.4		09	13.3	25	26.767	-45.9		09	9.0	25	26.671	-46.8		09	8.6																			
0	3n	28.769	-43.3		0.3	10.9	29	28.643	-43.3		08	10.4	16	28.603	-42.3		08	12.1	24	28.763	-42.3		09	12.9	24	28.679	-43.7		09	8.5																			
10	3n	31.317	-38.1		0.5	11.6	30	31.366	-37.6		06	6.1	31	31.342	-37.5		06	17	31.310	-35.5		09	10.8	9	31.609	-39.6																							







# RAWINSONDE DATA

Average monthly values

JUNE 1978

FLINT, MI 989 MB										GLASCO, MT 933 MB										GRAND JUNCTION, CO 852 MB										GREAT FALLS, MT 889 MB										GREEN BAY, WI 990 MB									
Standard pressure surface mb	No. of observations	Dynam. height meters	Temperature °C	Dew Point °C	Direction true deg	Speed m/s	No. of observations	Dynam. height meters	Temperature °C	Dew Point °C	Direction true deg	Speed m/s	No. of observations	Dynam. height meters	Temperature °C	Dew Point °C	Direction true deg	Speed m/s	No. of observations	Dynam. height meters	Temperature °C	Dew Point °C	Direction true deg	Speed m/s	No. of observations	Dynam. height meters	Temperature °C	Dew Point °C	Direction true deg	Speed m/s	No. of observations	Dynam. height meters	Temperature °C	Dew Point °C	Direction true deg	Speed m/s													
SPC 1000	30	236	14.0	11.1	41	1.4	30	696	11.3	8.6	07	.8	30	1472	10.6	-1.0	13	2.1	30	1118	11.0	5.0	24	3.5	30	210	12.5	9.3	24	.8	30	557	15.4	7.7	26	3.9													
950	30	573	15.8	8.2	24	4.7	30	999	15.2	5.8	27	1.6	24	1592	17.5	-1.1	13	2.9	30	1492	13.3	-	26	5.9	30	1014	13.8	6.0	27	5.8	30	1494	11.1	2.6	27	7.0													
900	30	1032	13.9	6.1	27	6.3	30	1482	13.1	2.3	29	4.2	24	2013	18.1	-1.3	17	2.4	30	1990	9.0	-1.4	28	4.7	30	1494	11.1	2.6	27	7.0	30	1998	8.2	-1.9	27	8.4													
850	30	1512	11.1	2.9	27	7.1	30	1982	9.2	0.0	29	4.2	24	2513	15.7	-1.1	25	3.7	30	2532	5.9	-3.7	27	4.7	30	1998	8.2	-1.9	27	8.4	30	2529	5.3	-5.9	27	8.4													
800	30	2016	8.5	-0.9	24	8.4	30	2520	5.7	-3.5	29	7.8	30	3140	10.3	-0.7	26	5.8	30	3093	1.8	-4.7	27	5.1	30	3089	2.4	-11.7	28	9.9	30	3085	2.4	-11.7	28	9.9													
750	30	2547	6.0	-3.4	24	8.4	30	3071	1.9	-7.3	29	9.2	30	3751	5.4	-8.6	26	7.8	30	3687	-1.9	-11.7	27	6.7	30	3685	-1.0	-15.4	28	11.5	30	3685	-1.0	-15.4	28	11.5													
700	30	3110	3.2	-10.2	24	9.3	30	3675	-1.7	-17.5	28	9.2	30	4399	-1.1	-11.3	25	9.3	30	4319	-6.3	-16.4	27	7.7	30	4319	-4.6	-20.1	28	12.4	30	4319	-4.6	-20.1	28	12.4													
650	30	3707	-2.2	-13.2	24	10.7	30	4307	-5.7	-20.1	28	9.2	30	5088	-5.7	-15.2	24	10.6	30	4996	-10.8	-22.9	26	9.3	30	4999	-8.7	-23.7	28	13.1	30	4999	-8.7	-23.7	28	13.1													
600	30	4304	-3.7	-18.0	24	12.9	30	4984	-10.3	-22.6	28	11.0	30	5828	-10.6	-22.7	24	13.0	30	5718	-13.4	-24.9	26	10.0	30	5720	-13.8	-24.9	26	13.4	30	5720	-13.8	-24.9	26	13.4													
550	30	5025	-8.1	-21.9	24	14.4	30	5711	-13.4	-27.7	28	11.0	30	6520	-16.3	-30.5	25	15.7	30	6500	-21.4	-34.9	26	10.1	30	6523	-18.9	-33.7	26	17.4	30	6523	-18.9	-33.7	26	17.4													
500	30	5759	-13.0	-28.6	24	15.3	30	6490	-20.9	-32.4	28	11.8	30	7357	-22.8	-36.1	25	16.0	30	7364	-27.7	-40.1	26	11.7	30	7350	-23.1	-38.6	26	19.9	30	7350	-23.1	-38.6	26	19.9													
450	30	6584	-18.1	-32.2	24	17.1	30	7357	-22.8	-36.1	28	12.4	30	8473	-30.2	-41.0	25	20.1	30	8313	-34.9	-45.3	25	12.1	30	8356	-31.5	-43.0	28	20.8	30	8356	-31.5	-43.0	28	20.8													
400	30	7423	-24.3	-37.3	24	18.9	30	8473	-30.2	-41.0	28	12.4	30	9555	-38.2	-47.8	26	22.8	30	9307	-43.4	-50.3	25	13.3	30	9425	-39.6	-46.5	28	22.8	30	9425	-39.6	-46.5	28	22.8													
350	30	8307	-31.1	-43.1	24	21.5	30	9367	-43.3	-50.9	27	15.9	30	10785	-47.4	-54.4	26	25.5	30	10571	-51.9	-58.9	26	15.5	30	10649	-48.5	-55.8	28	25.8	30	10649	-48.5	-55.8	28	25.8													
300	30	9459	-39.2	-46.3	24	23.7	30	12007	-53.9	-60.9	27	18.7	30	12431	-55.9	-62.9	26	24.7	30	12007	-54.0	-61.0	26	16.5	30	12407	-52.2	-59.2	28	26.7	30	12407	-52.2	-59.2	28	26.7													
250	30	10684	-48.3	-56.1	24	25.1	30	12865	-53.3	-61.3	27	17.7	30	13076	-58.4	-65.4	26	22.8	30	12884	-54.1	-62.1	26	14.8	30	13076	-55.3	-62.3	28	27.7	30	13076	-55.3	-62.3	28	27.7													
200	30	12126	-56.1	-63.1	24	26.1	30	13076	-53.3	-61.3	27	15.9	30	14041	-60.0	-67.0	26	19.4	30	13853	-53.4	-61.4	26	14.7	30	13914	-57.4	-65.4	28	19.0	30	13914	-57.4	-65.4	28	19.0													
175	30	12972	-57.8	-64.8	24	26.1	30	13076	-53.3	-61.3	27	13.4	30	15174	-62.2	-69.2	26	13.3	30	15025	-54.3	-62.3	26	11.8	30	15066	-58.3	-66.3	28	14.3	30	15066	-58.3	-66.3	28	14.3													
150	30	13968	-58.1	-65.1	24	26.1	30	13076	-53.3	-61.3	27	10.1	30	16547	-64.4	-71.4	26	7.7	30	16448	-56.6	-64.6	26	8.0	30	16464	-59.4	-67.4	28	9.8	30	16464	-59.4	-67.4	28	9.8													
125	30	15089	-59.1	-66.1	24	26.1	30	13076	-53.3	-61.3	27	5.4	30	17920	-61.8	-68.8	26	2.7	30	17801	-57.2	-65.2	26	4.8	30	17864	-59.4	-67.4	28	6.8	30	17864	-59.4	-67.4	28	6.8													
100	30	16405	-60.1	-67.1	24	26.1	30	13076	-53.3	-61.3	27	3.2	30	19750	-60.0	-67.0	26	1.4	30	19718	-56.5	-64.5	26	2.8	30	19702	-57.9	-65.9	28	4.1	30	19702	-57.9	-65.9	28	4.1													
80	30	17878	-59.9	-66.9	24	26.1	30	13076	-53.3	-61.3	27	1.6	30	20869	-60.0	-67.0	26	0.9	30	20836	-54.1	-62.1	26	1.2	30	20839	-54.8	-62.8	28	2.0	30	20839	-54.8	-62.8	28	2.0													
70	30	18714	-59.1	-66.1	24	26.1	30	13076	-53.3	-61.3	27	0.7	30	22291	-61.2	-68.2	26	0.5	30	22299	-52.3	-60.3	26	0.8	30	22280	-52.7	-60.7	28	1.8	30	22280	-52.7	-60.7	28	1.8													
60	30	19687	-58.1	-65.1	24	26.1	30	13076	-53.3	-61.3	27	0.3	30	24149	-61.3	-68.3	26	0.8	30	24146	-60.7	-68.7	26	0.9	30	24147	-59.4	-67.4	28	4.8	30	24147	-59.4	-67.4	28	4.8													
50	30	20840	-55.7	-62.7	24	26.1	30	13076	-53.3	-61.3	27	0.8	30	25335	-61.2	-68.2	26	0.9	30	25330	-61.1	-69.1	26	0.7	30	25340	-61.4	-69.4	28	6.1	30	25340	-61.4	-69.4	28	6.1													
40	30	22270	-53.1	-60.1	24	26.1	30	13076	-53.3	-61.3	27	0.8	30	26879	-61.2	-68.2	26	0.9	30	26878	-61.4	-69.4	26	0.8	30	26878	-61.4	-69.4	28	7.8	30	26878	-61.4	-69.4	28	7.8													
30	30	24134	-50.7	-57.7	24	26.1	30	13076	-53.3	-61.3	27	0.9	30	28773	-61.2	-68.2	26	0.9	30	28769	-61.4	-69.4	26	0.9	30	28769	-61.4	-69.4	28	9.1	30	28769	-61.4	-69.4	28	9.1													
20	30	25330	-49.0	-56.0	24	26.1	30	13076	-53.3	-61.3	27	0.9	30	31200	-61.3	-68.3	26	0.9	30	31239	-61.0	-68.0	26	0.9	30	31239	-61.0	-68.0	28	11.1	30	31239	-61.0	-68.0	28	11.1													
15	30	26804	-46.8	-53.8	24	26.1	30	13076	-53.3	-61.3	27	0.9	30	31200	-61.3	-68.3	26	0.9	30	31239	-61.0	-68.0	26	0.9	30	31239	-61.0	-68.0	28	11.1	30	31239	-61.0	-68.0	28	11.1													
10	30	28735	-43.7	-50.7	24	26.1	30	13076	-53.3	-61.3	27	0.9	30	31200	-61.3	-68.3	26	0.9	30	31239	-61.0	-68.0	26	0.9	30	31239	-61.0	-68.0	28	11.1	30	31239	-61.0	-68.0	28	11.1													
5	30	31482	-38.7	-45.7	24	26.1	30	13076	-53.3	-61.3	27	0.9	30	31200	-61.3	-68.3	26	0.9	30	31239	-61.0	-68.0	26	0.9	30	31239	-61.0	-68.0	28	11.1	30	31239	-61.0	-68.0	28	11.1													

GREENSBORO, NC 987 MB										GUADALUPE IS., MEXICO 1011 MB										GUAM, MARIANA IS. 999 MB										HILO, HI 1016 MB										HUNTINGTON, WV 989 MB									
SPC	29	278	17.9	10.3	27	.6	20	23	17.3	13.3	93	4.3	30	111	25.3	23.7	09	2.8	30	10	21.9	20.0	25	1.8	29	246	17.5	14.7	20	.4	29	557	15.4	7.7	26	3.9	29	1014	13.8	6.0	27	5.8							
1000																																																	
950	29	604	19.9	14.7	27	2.8	20	557	20.1	16.9	93	3.7	30	551	23.9	21.6	10	7.1	30	593	19.0	17.2	29	2.2	29	595	19.3	12.1	24	3.4	29	1014	13.8	6.0	27	5.8													
900	29	1070	17.6	11.5	26	3.2	20	1025	22.4	18.6	93	4.3	30	1024	21.1	18.5	10	7.1	30	1053	19.3	17.1	29	2.2	29	1059	19.3	12.1	24	3.4	29	1014	13.8	6.0	27	5.8													
850	29	1135	17.1	8.1	29	3.1	20	1121	18.8	11.8	94	3.2	30	1118	15.1	11.1	10	6.7	30	1151	13.3	11.1	29	3.0	29	1154	13.8	8.3	28	6.1	29	1014	13.8	6.0	27	5.8													
800	29	2268	12.1	4.1	28	4.9	20	2404	18.9	3.7	32	2.1	30	2017	15.8	12.1	10	6.2	30	2250	10.8	7.7	29	4.0	29	2204	11.3	1.9	28	6.8	29	1014	13.8	6.0	27	5.8													
750	29	2860	9.0	-.6	29	5.5	20	2594	15.4	-.5	29	1.7	30	2584	13.0	11.0	10	6.4	30	2587	9.0	-.2	29	4.4	29	2590	8.2	-.2	28	7.2	29	1014	13.8	6.0	27	5.8													
700	29	3174	5.8	-.5	29	5.8	20	3174	11.8	-.8	25	2.0	30	3192	10.1	4.1	10	7.1	30	3158	8.0	-.10	10	3.6	29	3157	5.2	-.7	28	7.5	29	1014	13.8	6.0	27	5.8													
650	29	3778	2.5	-.12	29	6.3	20	3790	7.8	-.10	23	2.2	30	3777	6.8	-.2	09	5.8	30	3766	5.1	-.13	11	2.6	29	3759	2.0	-.10	29	9.8	29	1014	13.8	6.0	27	5.8													
600	29	4222	0.0	-.4	29	6.4	20	4242	3.1	-.14	24	2.4	30	4231	3.3	-.37	09	6.0	30	4210	0.0	-.2	12	1.2	29	4201	-.1	-.15	28	9.0	29	1014	13.8	6.0	27	5.8													
550	29	5108	-.5	-.14	29	7.2	20	5142	-.2	-.17	25	3.3	30	5131	-.8	-.8	09	5.8	30	5112	-.2	-.22	21	1.9	29	5108	-.5	-.19	28	9.8	29	1014	13.8	6.0	27	5.8													
500	29	5830	-.8	-.24	29	7.6	20	5893	-.8	-.23	27	4.1	30	5880	-.5	-.13	09	5.3	30	5862	-.8	-.25	25	2.8	29	5828	-.10	-.24	28	11.7	29	1014	13.8	6.0	27	5.8													
450	29	6555	-.14	-.30	20	8.2	20	6706	-.12	-.28	28	5.7	30	6790	-.14	-.17	08	4.9	30	6766	-.12	-.27	28	4.4	29	6732	-.15	-.29	28	11.5	29	1014	13.8	6.0	27	5.8													
400	29	7336	-.20	-.34	29	10.2	20	7593	-.19	-.36	28	6.4	30	7605	-.15	-.27	08	3.9	30	7564	-.18	-.34	28	7.0	29	7512	-.22	-.35	28	12.1	29	1014	13.8	6.0	27	5.8													
350	29	8153	-.27	-.41	30	12.0	20	8375	-.22	-.41	27	7.2	30	8401	-.22	-.32	07	3.8	30	8348	-.26	-.47	1	7.6	29	8347	-.27	-.41	27	13.3	29	1014	13.8	6.0	27	5.8													
300	29	8902	-.34	-.48	29	13.1	20	9066	-.35	-.49	27	12.6	30	9171	-.31	-.40	05	2.8	30	9242	-.33	-.47	26	12.9	29	9250	-.36	-.7	28	17.1	29	1014	13.8	6.0	27	5.8													
250	29	10842	-.45	-.8	29	15.3	20	10913	-.44	-.2	27	13.8	30	10976	-.41	-.48	03	2.9	30	10889	-.44	-.8	26	16.0	29	10808	-.46	0	28	20.4	29	1014	13.8	6.0	27	5.8													
200	29	12294	-.55	-.9	29	18.1	19	12381	-.53	9	26	15.3	30	12449	-.54	02	4.0	30	12343	-.56	9	26	19.4	29	12259	-.55	9	28	21.6	29	1014	13.8	6.0	27	5.8														
175	29	13135	-.63	-.4	29	18.6	19	13229	-.58	9	25	15.8	30	13292	-.61	01	4.3	30	13178	-.62	8	26	20.7	29	13103	-.59	4	29	21.9	29	1014	13.8	6.0	27	5.8														
150	29	14088	-.69	-.3	29	18.7	19	14188	-.68	9	25	15.8	30	14232	-.68	01	5.4	30	14114	-.68	8	26	20.0	29	14058	-.61	5	28	18.7	29	1014	13.8	6.0	27	5.8														
125	29	15020	-.75	-.2	29	11.5	20	15092	-.68	8	18	10.6	30	15109	-.78	0	5.0	15	15199	-.70	8	26	16.4	29	15158	-.68	7	28	14.3	29	1014	13.8	6.0	27	5.8														
100	29	16034	-.53	3	31	6.5	19	16015	-.7	3	24	4.8	26	16080	-.77	5	7.7	30	16137	-.71	6	26	6.9	29	16053	-.62	6	28	8.1	29	1014	13.8	6.0	27	5.8														
75	29	17924	-.64	6	31	1.6	18	17942	-.68	5	29	8.25	17	17874	-.73	9	08	11.8	28	17839	-.69	6	11	2.7	17	17939	-.62	5	30	3.7	29	1014	13.8	6.0	27	5.8													
50	29	18874	-.62	04	1.6	18	18749	-.66	4	07	2.7	23	18959	-.70	1	08	12.5	28	18936	-.68	9	10	6.2	28	18786	-.61	1	33	1.4	29	1014	13.8	6.0	27	5.8														
25	29	19700	-.60	3	3.3	15	19698	-.62	9	05	5.3	22	19738	-.66	1	08	11.6	27	19736	-.66	1	09	9.4	28	19728	-.50	0	31	1.6	29	1014	13.8	6.0	27	5.8														
0	29	20846	-.57	0	9.2	13	20833	-.59	7	04	23	19.8	20859	-.62	7	09	11.0	27	20859	-.62	7	09	13.1	28	20847	-.50	0	33	1.4	29	1014	13.8	6.0	27	5.8														
7	29	22298	-.58	0	7.2	14	22300	-.56	2	09	8.1	22	22298	-.57	8	09	10.8	22	22298	-.57	8	09	13.2	27	22293	-.53	0	30	6.9	29	1014	13.8	6.0	27	5.8														
4	29	24127	-.50	0	7.6	12	24082	-.51	6	09	10.9	22	23932	-.53	0	09	13.0	25	23904	-.53	1	09	15.2	27	24017	-.50	4	09	6.9	29	1014	13.8	6.0	27	5.8														
1	29	25321	-.48	0	7.9	14	25271	-.49	5	08	8.8	21	25116	-.50	3	09	14.1	24	25088	-.50	6	09	16.6	27	25037	-.48	3	09	7.8	29	1014	13.8	6.0	27	5.8														
8	29	26796	-.46	0	8.6	12	26738	-.47	7	08	8.4	21	26683	-.48	0	09	16.5	23	26554	-.47	2	09	17.7	26	26862	-.46	1	09	9.8	29	1014	13.8	6.0	27	5.8														
5	29	28720	-.43	7	9.5	9	28661	-.44	1	08	7.0	16	28491	-.44	7	09	24.2	21	28399	-.44	9	09	18.4	28	28773	-.42	5	09	10.3	29	1014	13.8	6.0	27	5.8														
2	29	31482	-.38	4	12.0						10	31218	-.40	7	09							10	20	31492	-.39	2																							
7	29	33933	-.4																																														



Average monthly values

KONOR, CAROLINE

MAJURO, MARSHAL IS.										PAGO PAGO, MS										MIDLAND, TX										MONTEREY, MEXICO										MONTPELIER, MO									
1010 MR										971 MB										916 MB										903 MB										907 MB									
500	20	3	29.0	24.0	08	3.9	30	401	12.0	7.5	35	.3	30	874	19.7	14.6	15	3.4	30	423	22.9	20.0	12	2.0	30	438	18.1	16.0	15	1.9																			
1000	20	3	29.0	23.5	08	3.9	30	401	12.0	7.5	35	.3	30	874	19.7	14.6	15	3.4	30	423	22.9	20.0	12	2.0	30	438	18.1	16.0	15	1.9																			
950	20	5	29.0	21.9	08	4.7	30	582	14.0	7.3	30	.7	30	1024	20.6	14.8	16	6.3	30	1063	19.5	16.8	12	4.9	30	1059	15.3	13.1	23	3.3																			
900	20	10	22.1	18.6	08	7.3	30	10038	12.4	5.5	31	.8	30	1024	20.6	14.8	16	6.3	30	1063	19.5	16.8	12	4.9	30	1059	15.3	13.1	23	3.3																			
850	20	13	18.1	15.4	08	7.6	30	1015	9.8	2.9	33	.3	30	1018	19.5	8.7	18	10.1	30	10535	18.3	13.8	14	5.6	30	10550	17.2	8.0	25	6.2																			
800	20	20	15.9	12.4	08	7.5	30	20017	7.5	1.8	24	.7	30	20042	19.6	3.4	19	5.5	30	20054	16.3	8.3	14	5.2	30	20026	14.8	8.7	27	5.2																			
750	20	23	13.2	9.9	08	7.3	30	20446	4.7	.2	24	2.3	30	20594	16.3	-.5	17	2.6	30	20601	13.4	2.9	13	3.9	30	20605	11.7	3.7	27	9.1																			
700	20	27	10.8	6.8	08	7.3	30	20446	4.7	.2	24	2.3	30	20594	16.3	-.5	17	2.6	30	20601	13.4	2.9	13	3.9	30	20605	11.7	3.7	27	9.1																			
650	20	30	7.5	6.8	08	6.9	30	20594	2.3	1.5	25	5.0	30	30792	17.4	8.0	35	1.8	30	30791	6.6	8.2	30	1.2	30	30790	4.2	8.4	27	8.4																			
600	20	33	4.0	2.4	08	5.8	30	60229	0.2	1.8	25	5.1	30	44444	2.2	-11.1	34	4.2	30	44443	2.5	-13.5	02	2.9	30	44437	2.2	-14.1	27	5.4																			
550	20	36	3.0	1.2	08	4.4	30	50204	1.7	2.3	20	5.3	30	51339	3.5	-14.5	34	5.2	30	51341	-2.1	-18.3	02	2.4	30	51328	-4.5	-19.0	27	4.8																			
500	20	39	2.0	0.5	08	3.3	30	51330	1.6	2.9	26	5.8	30	50885	-9.0	-19.4	33	3.9	30	50892	-6.7	-22.9	08	3.1	30	50872	-9.3	-23.6	28	6.8																			
450	20	42	0.7	0.2	08	2.4	30	60229	-21.2	3.0	26	7.5	30	60895	-19.0	-30.1	31	3.8	30	60912	-17.7	-31.6	03	3.8	30	60894	-19.0	-30.1	27	7.7																			
400	20	45	0.6	0.1	08	1.9	30	70375	0.0	3.8	17	6.8	29	70581	-9.6	3.4	20	5.0	29	70500	-6.0	-32.8	01	3.6	30	70599	-20.9	-30.0	28	9.3																			
350	20	48	0.6	0.2	08	1.6	29	80324	-35.0	4.0	27	9.6	29	80562	-22.5	-42.0	20	7.6	29	80582	-24.2	-40.2	35	3.7	30	80535	-28.0	-41.1	29	9.6																			
300	20	51	0.7	0.3	08	1.3	29	90379	-42.7	50.3	18	9.3	29	90555	-34.8	-88.2	28	8.9	29	90592	-32.7	-67.4	34	3.1	30	90619	-30.8	-67.2	29	11.0																			
250	20	54	0.8	0.4	08	1.0	29	10091	-49.5	57.7	12	12.2	29	10093	-54.1	-.6	28	11.9	28	10094	-52.4	-.4	33	5.5	30	10088	-60.0	-.4	29	13.8																			
200	20	57	1.2	0.6	08	0.6	29	12003	-53.5	57.7	13	13.7	29	12085	-53.6	-.6	28	13.4	28	12048	-54.1	-.3	33	5.2	30	12031	-59.6	-.6	28	17.3																			
150	20	60	1.3	0.7	08	0.5	29	13099	-57.8	57.7	14	14.1	29	13099	-57.9	-.9	28	13.7	28	13023	-58.8	-.8	33	4.5	30	13051	-60.0	-.8	28	20.0																			
100	20	63	1.4	0.8	08	0.4	29	14083	-58.3	57.7	15	15.0	29	14083	-58.3	-.8	28	14.0	28	14011	-59.0	-.9	30	2.9	30	14028	-62.9	-.9	28	19.7																			
50	20	66	1.5	0.9	08	0.3	29	15004	-59.3	57.7	16	16.7	29	15020	-59.0	-.9	27	11.7	28	15211	-60.1	-.9	30	2.7	30	15027	-64.9	-.9	28	12.3																			
0	20	69	1.6	1.0	08	0.2	29	16046	-59.7	57.7	17	17.9	29	16093	-59.4	-.9	26	3.0	27	16004	-60.7	-.9	02	1.2	30	16087	-65.0	-.9	28	6.3																			
250	20	72	1.7	1.1	08	0.1	29	17064	-59.6	57.7	18	18.1	29	17091	-60.2	-.9	27	1.4	27	17022	-60.8	-.9	02	1.0	30	17095	-63.6	-.9	28	2.4																			
200	20	75	1.8	1.2	08	0.1	29	18073	-59.7	57.7	19	19.2	29	18074	-60.4	-.9	26	1.4	26	18073	-60.7	-.9	02	1.0	30	18073	-62.2	-.9	28	2.4																			
150	20	78	1.9	1.3	08	0.1	29	19089	-59.8	57.7	20	20.2	29	19089	-59.8	-.9	25	1.4	25	19089	-60.7	-.9	02	1.0	30	19089	-63.6	-.9	28	2.4																			
100	20	81	2.0	1.4	08	0.1	29	20082	-59.9	57.7	21	21.3	29	20082	-59.9	-.9	24	1.4	24	20082	-60.7	-.9	02	1.0	30	20082	-63.6	-.9	28	2.4																			
50	20	84	2.1	1.5	08	0.1	29	21082	-60.0	57.7	22	22.4	29	21082	-60.0	-.9	23	1.4	23	21082	-60.7	-.9	02	1.0	30	21082	-63.6	-.9	28	2.4																			
0	20	87	2.2	1.6	08	0.1	29	22082	-60.1	57.7	23	23.5	29	22082	-60.1	-.9	22	1.4	22	22082	-60.7	-.9	02	1.0	30	22082	-63.6	-.9	28	2.4																			
250	20	90	2.3	1.7	08	0.1	29	23082	-60.2	57.7	24	24.6	29	23082	-60.2	-.9	21	1.4	21	23082	-60.7	-.9	02	1.0	30	23082	-63.6	-.9	28	2.4																			
200	20	93	2.4	1.8	08	0.1	29	24082	-60.3	57.7	25	25.7	29	24082	-60.3	-.9	20	1.4	20	24082	-60.7	-.9	02	1.0	30	24082	-63.6	-.9	28	2.4																			
150	20	96	2.5	1.9	08	0.1	29	25082	-60.4	57.7	26	26.8	29	25082	-60.4	-.9	19	1.4	19	25082	-60.7	-.9	02	1.0	30	25082	-63.6	-.9	28	2.4																			
100	20	99	2.6	2.0	08	0.1	29	26082	-60.5	57.7	27	27.9	29	26082	-60.5	-.9	18	1.4	18	26082	-60.7	-.9	02	1.0	30	26082	-63.6	-.9	28	2.4																			
50	20	102	2.7	2.1	08	0.1	29	27082	-60.6	57.7	28	29.0	29	27082	-60.6	-.9	17	1.4	17	27082	-60.7	-.9	02	1.0	30	27082	-63.6	-.9	28	2.4																			
0	20	105	2.8	2.2	08	0.1	29	28082	-60.7	57.7	29	30.1	29	28082	-60.7	-.9	16	1.4	16	28082	-60.7	-.9	02	1.0	30	28082	-63.6	-.9	28	2.4																			
250	20	108	2.9	2.3	08	0.1	29	29082	-60.8	57.7	30	31.2	29	29082	-60.8	-.9	15	1.4	15	29082	-60.7	-.9	02	1.0	30	29082	-63.6	-.9	28	2.4																			
200	20	111	3.0	2.4	08	0.1	29	30082	-60.9	57.7	31	32.3	29	30082	-60.9	-.9	14	1.4	14	30082	-60.7	-.9	02	1.0	30	30082	-63.6	-.9	28	2.4																			
150	20	114	3.1	2.5	08	0.1	29	31082	-61.0	57.7	32	33.4	29	31082	-61.0	-.9	13	1.4	13	31082	-60.7	-.9	02	1.0	30	31082	-63.6	-.9	28	2.4																			
100	20	117	3.2	2.6	08	0.1	29	32082	-61.1	57.7	33	34.5	29	32082	-61.1	-.9	12	1.4	12	32082	-60.7	-.9	02	1.0	30	32082	-63.6	-.9	28	2.4																			
50	20	120	3.3	2.7	08	0.1	29	33082	-61.2	57.7	34	35.6	29	33082	-61.2	-.9	11	1.4	11	33082	-60.7	-.9	02	1.0	30	33082	-63.6	-.9	28	2.4																			
0	20	123	3.4	2.8	08	0.1	29	34082	-61.3	57.7	35	36.7	29	34082	-61.3	-.9	10	1.4	10	34082	-60.7	-.9	02	1.0	30	34082	-63.6	-.9	28	2.4																			
250	20	126	3.5	2.9	08	0.1	29	35082	-61.4	57.7	36	37.8	29	35082	-61.4	-.9	9	1.4	9	35082	-60.7	-.9	02	1.0	30	35082	-63.6	-.9	28	2.4																			
200	20	129	3.6	3.0	08	0.1	29	36082	-61.5	57.7	37	38.9	29	36082	-61.5	-.9	8	1.4	8	36082	-60.7	-.9	02	1.0	30	36082	-63.6	-.9	28	2.4																			
150	20	132	3.7	3.1	08	0.1	29	37082	-61.6	57.7	38	40.0	29	37082	-61.6	-.9	7	1.4	7	37082	-60.7	-.9	02	1.0	30	37082	-63.6	-.9	28	2.4																			
100	20	135	3.8	3.2	08	0.1	29	38082	-61.7	57.7	39	41.1	29	38082	-61.7	-.9	6	1.4	6	38082	-60.7	-.9	02	1.0	30	38082	-63.6	-.9	28	2.4																			
50	20	138	3.9	3.3	08	0.1	29	39082	-61.8	57.7	40	42.2	29	39082	-61.8	-.9	5	1.4	5	39082	-60.7	-.9	02	1.0	30	39082	-63.6	-.9	28	2.4																			
0	20	141	4.0	3.4	08	0.1	29	40082	-61.9	57.7	41	43.3	29	40082	-61.9	-.9	4	1.4	4	40082	-60.7	-.9	02	1.0	30	40082	-63.6	-.9	28	2.4																			
250	20	144	4.1	3.5	08	0.1	29	41082	-62.0	57.7	42	44.4	29	41082	-62.0	-.9	3	1.4	3	41082	-60.7	-.9	02	1.0	30	41082	-63.6	-.9	28	2.4																			
200	20	147	4.2	3.6	08	0.1	29	42082	-62.1	57.7	43	45.5	29	42082	-62.1	-.9	2	1.4	2	42082	-60.7	-.9	02	1.0																									



# RAWINSONDE DATA

Average monthly values

JUNE 1978

NASHVILLE, TN 997 MB										NOME, AK 1009 MB										NORTH PLATTE, NE 918 MB										OAKLAND, CA 1016 MB										OMAHA, NE 968 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
SPC		30		180		19.1		17.5		16		30		5		6.1		3.5		17		1.1		30		647		14.3		10.4		06		3		30		6		13.0		10.7		26		1.4		30		403		17.6		13.8		17		1.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
1000		30		194		18.3		14.9		16		27		85		5.9		3.3		16		1.2		30		130		12.2		9.8		26		1.4		30		136		12.2		9.8		26		1.4		30		136		12.2		9.8		26		1.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
950		30		200		21.0		14.8		22		26		494		4.9		1.7		17		3.1		30		506		13.0		5.7		29		3.0		30		557		19.4		13.0		21		2.9		30		557		19.4		13.0		21		2.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
900		30		10606		18.1		12.3		25		36		933		2.0		-1.8		18		3.6		30		14014		16.6		10.9		20		1.1		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		30		14023		15.8		-3.2		3	



## Average monthly values

JUNE 1978

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## Average monthly values

JUNE 1978

YAP, CAROLINE IS.  
1008 MB

SPC	30	14	28.4	24.8	2.1
1000	30	83	27.1	24.0	11
950	30	337	23.9	21.4	10
900	30	1010	21.1	18.3	11
850	30	1803	18.2	15.1	10
800	30	24022	15.7	11.6	10
750	30	2509	13.0	8.4	10
700	30	3147	10.0	3.6	10
650	30	3761	6.7	.4	11
600	30	4415	3.1	-4.3	11
550	30	5115	-.9	-8.5	11
500	30	5871	-5.1	-15.2	10
450	30	6692	-9.7	-20.0	10
400	30	7593	-15.2	-26.7	10
350	30	8591	-22.0	-34.1	09
300	30	9703	-30.5	-42.3	08
250	30	10971	-40.9	-50.4	06
200	30	12447	-53.8		05
175	30	13292	-60.9		04
150	29	14234	-68.7		03
125	29	15308	-75.5		06
100	29	16583	-78.6		07
80	29	17871	-73.0		08
70	28	18663	-68.7		08
60	28	19594	-65.1		09
50	28	20714	-61.4		09
40	28	22110	-57.8		08
30	27	23949	-51.8		09
25	26	25141	-49.1		09
20	25	26621	-46.4		09
15	24	28567	-43.8		09
10	19	31291	-40.0		09



# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

UNIT: 1000

Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
BLUE HILL OBSERVATORY, MA										MAUNA LOA OBSERVATORY, HI									
Air mass										Air mass									
4.89	3.92	2.94	1.96	*	1.96	2.94	3.92	4.89		3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34	
NO DATA RECEIVED										1-----	1.01	1.11	1.22	1.35	1.43	1.33	1.23	1.18	
										2-----	1.04	1.14	1.25	1.36	1.44	1.34	1.24	1.19	
										3-----	1.06	1.16	1.27	1.38	1.46	1.36	1.26	1.21	
										4-----	1.08	1.18	1.29	1.40	1.48	1.38	1.28	1.23	
										5-----	1.10	1.20	1.31	1.42	1.50	1.40	1.30	1.25	
										6-----	1.12	1.22	1.33	1.44	1.52	1.42	1.32	1.27	
										7-----	1.15	1.25	1.36	1.47	1.55	1.45	1.35	1.30	
										8-----	1.18	1.28	1.39	1.50	1.58	1.48	1.38	1.33	
										9-----	1.20	1.30	1.41	1.52	1.60	1.50	1.40	1.35	
										10-----	1.22	1.32	1.43	1.54	1.62	1.52	1.42	1.37	
										11-----	1.25	1.35	1.46	1.57	1.65	1.55	1.45	1.40	
										12-----	1.28	1.38	1.49	1.60	1.68	1.58	1.48	1.43	
										13-----	1.30	1.40	1.51	1.62	1.70	1.60	1.50	1.45	
										14-----	1.32	1.42	1.53	1.64	1.72	1.62	1.52	1.47	
										15-----	1.35	1.45	1.56	1.67	1.75	1.65	1.55	1.50	
										16-----	1.38	1.48	1.59	1.70	1.78	1.68	1.58	1.53	
										17-----	1.40	1.50	1.61	1.72	1.80	1.70	1.60	1.55	
										18-----	1.42	1.52	1.63	1.74	1.82	1.72	1.62	1.57	
										19-----	1.45	1.55	1.66	1.77	1.85	1.75	1.65	1.60	
										20-----	1.48	1.58	1.69	1.80	1.88	1.78	1.68	1.63	
										21-----	1.50	1.60	1.71	1.82	1.90	1.80	1.70	1.65	
										22-----	1.52	1.62	1.73	1.84	1.92	1.82	1.72	1.67	
										Aver-	1.09	1.18	1.28	1.38	1.50	1.38	1.27	1.18	1.12
										ages									
MADISON, WI										TUCSON, AZ									
Air mass										Air mass									
4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64	
1-----	-----	S .62	-----	-----	-----	-----	-----	-----		1-----	.85	.97	1.09	1.25	1.48	1.23	1.05	.89	.80
4-----	-----	M .55	S .68	-----	-----	-----	-----	-----		2-----	.67	.79	.93	1.14	1.39	1.28	1.11	.98	.89
5-----	-----	-----	S .73	S .87	S .70	S .58	S .48	S .36		3-----	.88	.99	1.11	1.28	1.46	1.21	1.07	.92	.80
8-----	S .55	S .62	S .70	S .81	S .96	S .81	S .69	S .53		4-----	.84	.94	1.09	1.25	1.40	1.25	1.08	.93	.84
9-----	S .52	S .59	S .66	S .78	S .93	S .72	S .63	S .55		5-----	.79	.89	1.04	1.21	1.39	1.21	1.05	.91	.79
10-----	-----	-----	-----	S .92	S .73	-----	-----	-----		6-----	.66	.78	.90	1.12	1.41	1.16	.94	.80	.69
12-----	-----	-----	S .67	S .78	-----	S .68	S .61	S .53		7-----	.74	.86	.99	1.16	1.38	1.16	.97	.84	.74
13-----	S .55	S .63	S .71	S .77	-----	-----	-----	-----		8-----	.68	.80	.94	1.13	1.33	1.08	.90	.76	.63
19-----	S .51	S .61	S .70	S .78	-----	-----	-----	-----		9-----	.57	.70	.87	1.08	1.32	1.04	.86	.70	.60
21-----	S .55	S .63	S .70	S .81	S .89	-----	-----	-----		10-----	.57	.68	.84	1.06	1.33	1.13	.96	.83	.74
22-----	M .44	M .52	M .60	M .68	-----	-----	-----	-----		11-----	.78	.88	1.02	1.20	1.42	1.20	1.05	.92	.83
Aver-										12-----	.81	.91	1.04	1.20	1.41	1.18	.99	.85	.72
ages	.32	.60	.65	.76	.91	.74	.65	.56	.47	13-----	.59	.68	.85	1.06	1.29	1.13	.93	.80	.70
										14-----	.71	.83	.94	1.11	1.35	1.13	.94	.84	.76
										15-----	.68	.81	.94	1.12	1.34	1.13	.99	.85	.76
										16-----	.79	.88	1.01	1.17	1.39	1.14	.98	.84	.72
										17-----	.80	.89	1.03	1.19	1.39	1.16	1.03	.88	.81
										18-----	.83	.94	1.06	1.22	1.41	1.18	.99	.86	.79
										19-----	.82	.91	1.04	1.18	1.36	1.18	.99	.88	.77
										20-----	.90	1.00	1.11	1.25	1.40	1.20	1.06	.96	.85
										21-----	.83	.93	1.03	1.20	1.38	1.18	.99	.87	.77
										22-----	.70	.77	.91	1.08	1.26	1.08	.90	.78	.68
										23-----	.69	.79	.93	1.10	1.28	1.08	.89	.76	.65
										24-----	.49	.61	.77	.97	1.16	1.04	.87	.75	.63
										25-----	.69	.79	.90	1.11	1.35	1.19	1.05	.94	.84
										26-----	.66	.77	.90	1.07	1.31	1.06	.92	.82	.74
										27-----	.67	.79	.94	1.12	1.36	1.10	.93	.81	.72
										28-----	.67	.79	.94	1.12	1.36	1.10	.93	.81	.72
										29-----	.59	.69	.82	1.01	1.29	1.01	.84	.71	.61
										30-----	.74	.84	.96	1.12	1.38	1.21	1.03	.91	.81
										Aver-	.73	.83	.96	1.13	1.37	1.16	.99	.86	.75
										ages									

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . . .	112	179	207	236	209	104	202	202	201	215	291	277	208	149	48	202	84	87	112	95	275	148	118	87	190	2	161	101	297	192	166	166

## REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

### STORM SUMMARY:

- Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- Ø Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- ± No Storm Data Report received for this State.
- <> Report Incomplete.
- + Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

### RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

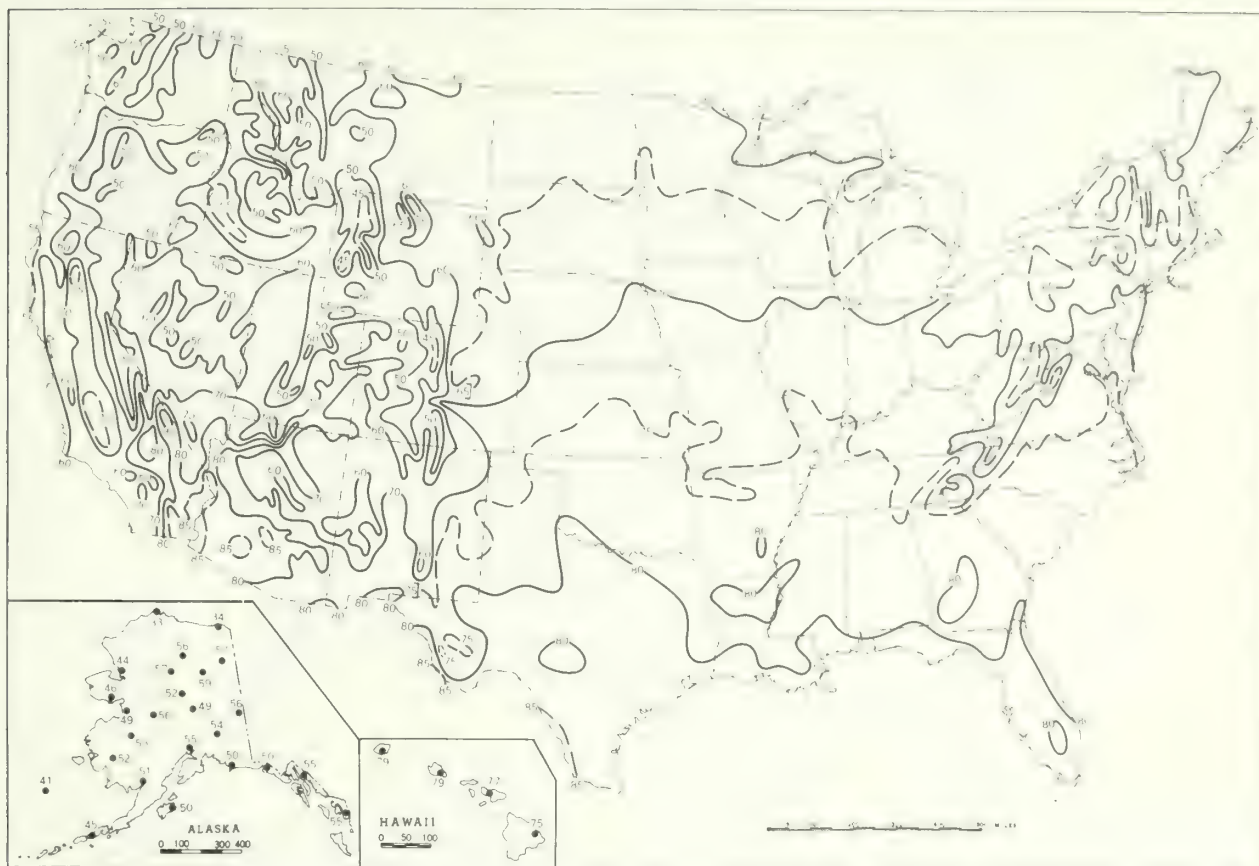
SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	CF	Ground Fog	K	Smoke	N	Sand
D	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), June.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), June 1978

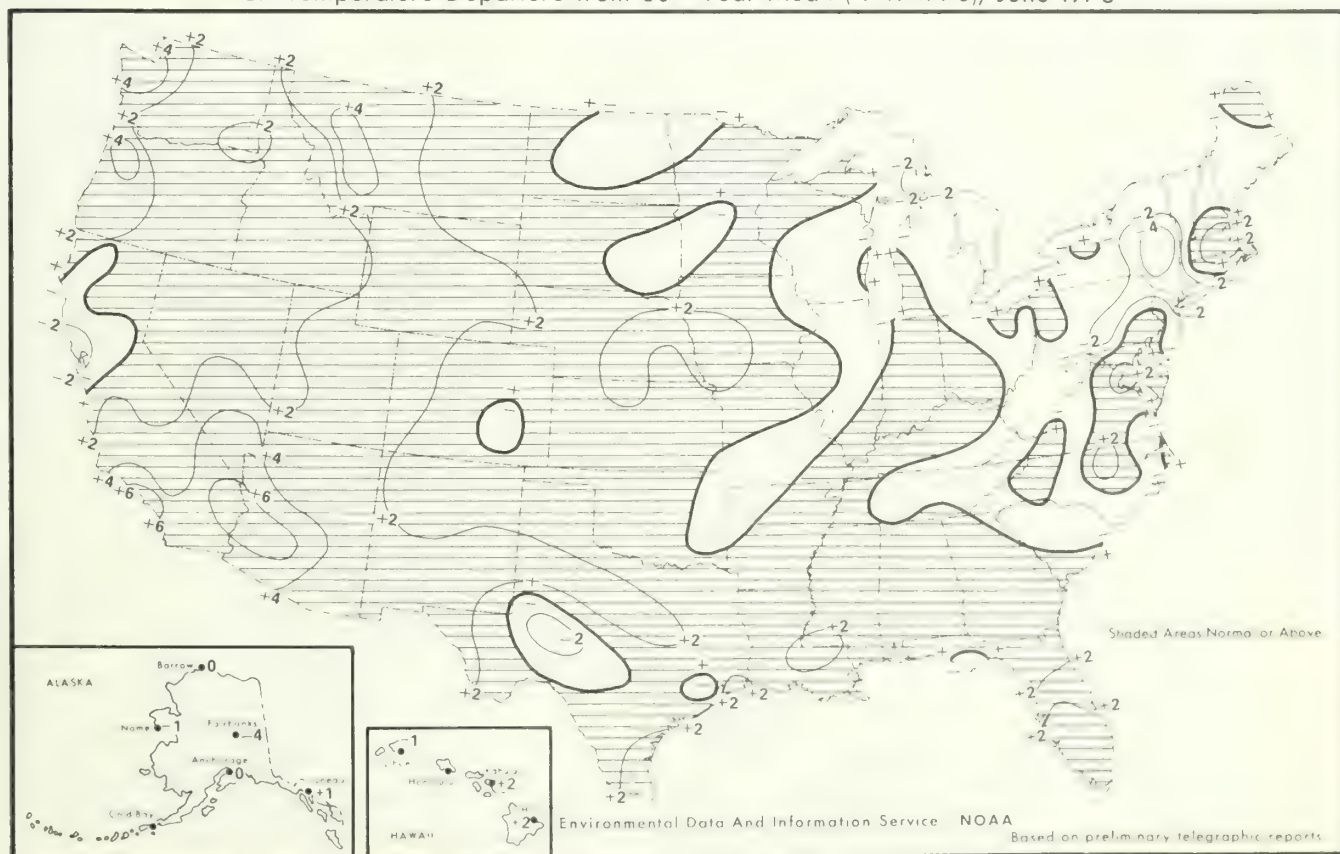
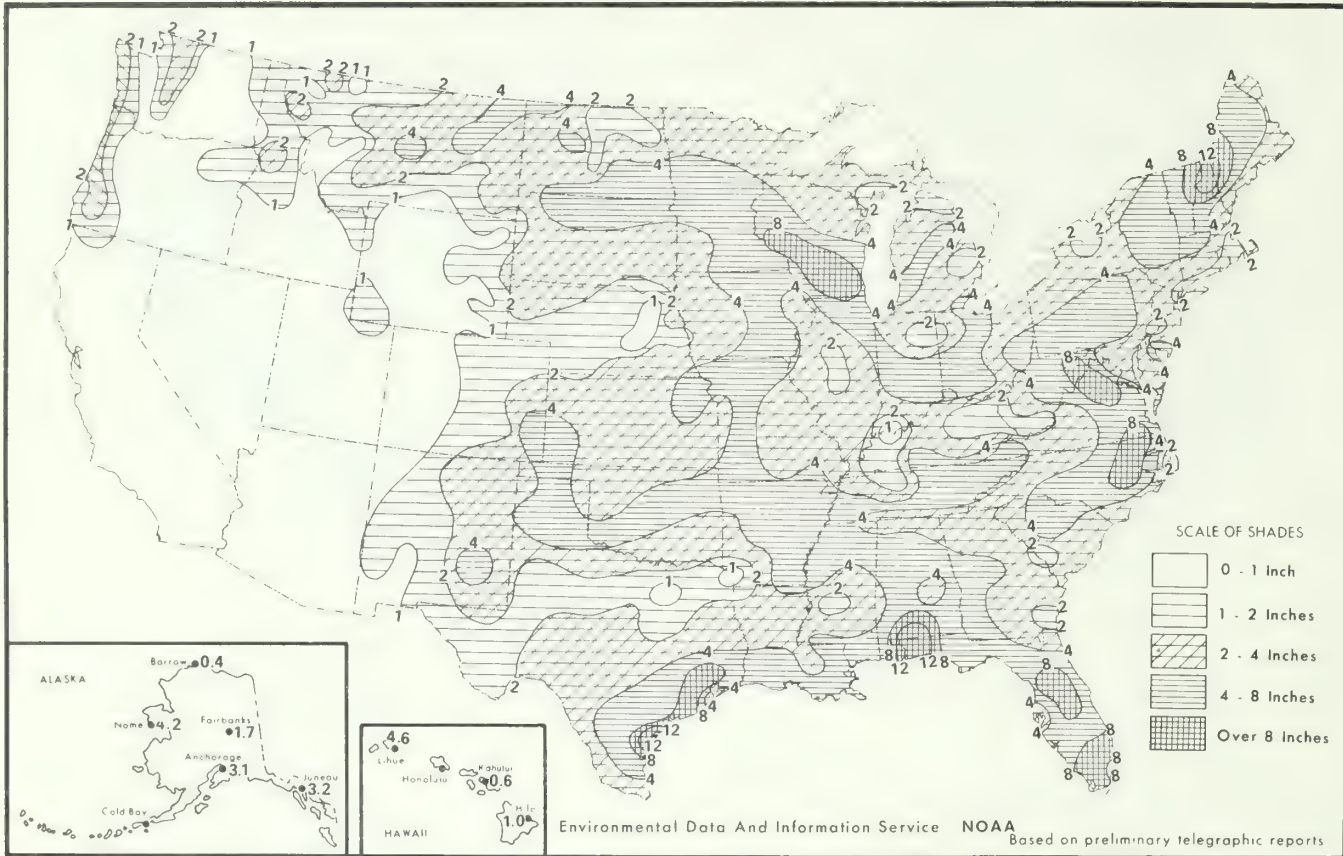




Chart II. A. Total Precipitation (Inches), June 1978



B. Percentage of Normal Precipitation, June 1978

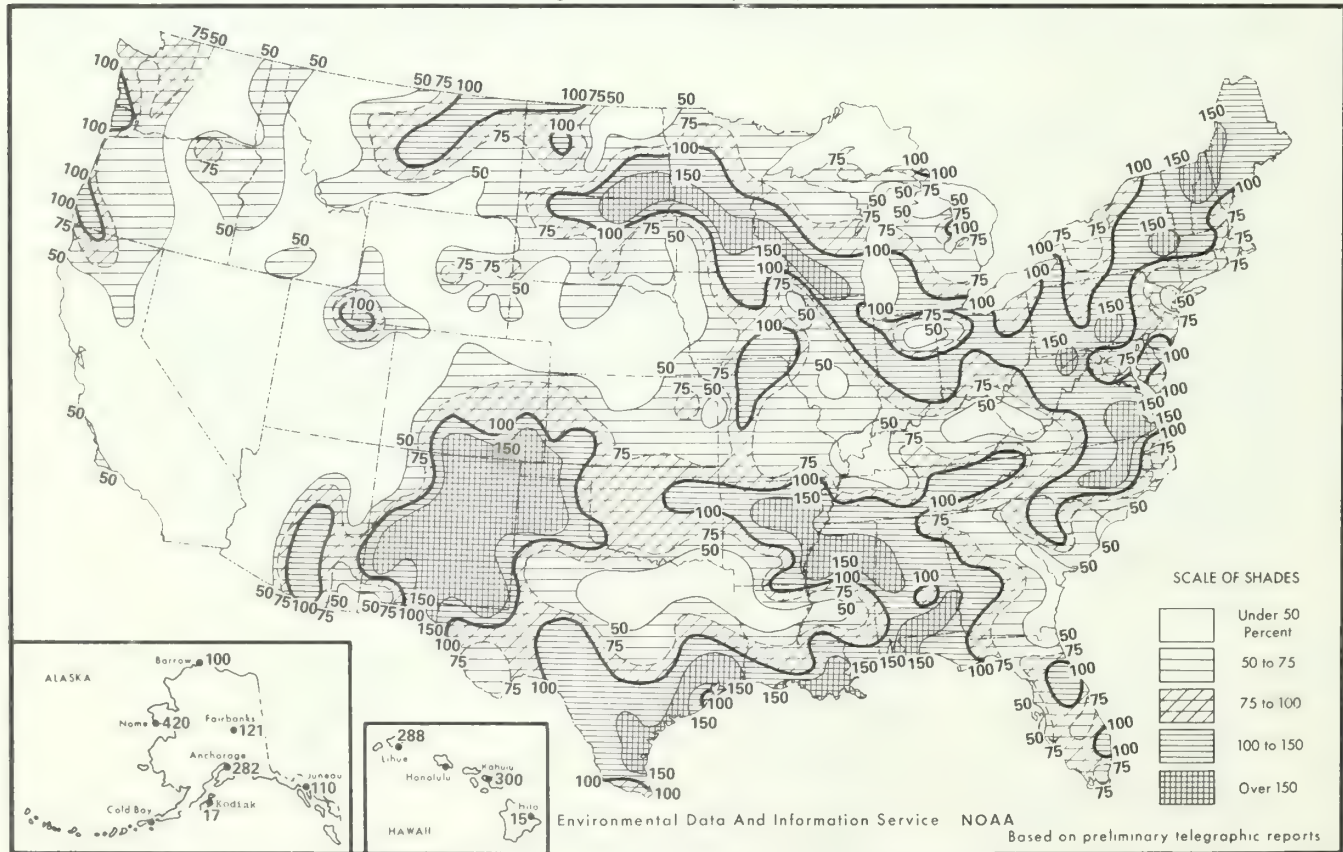


Chart III. Tracks of Centers of Anticyclones at Sea Level June 1978

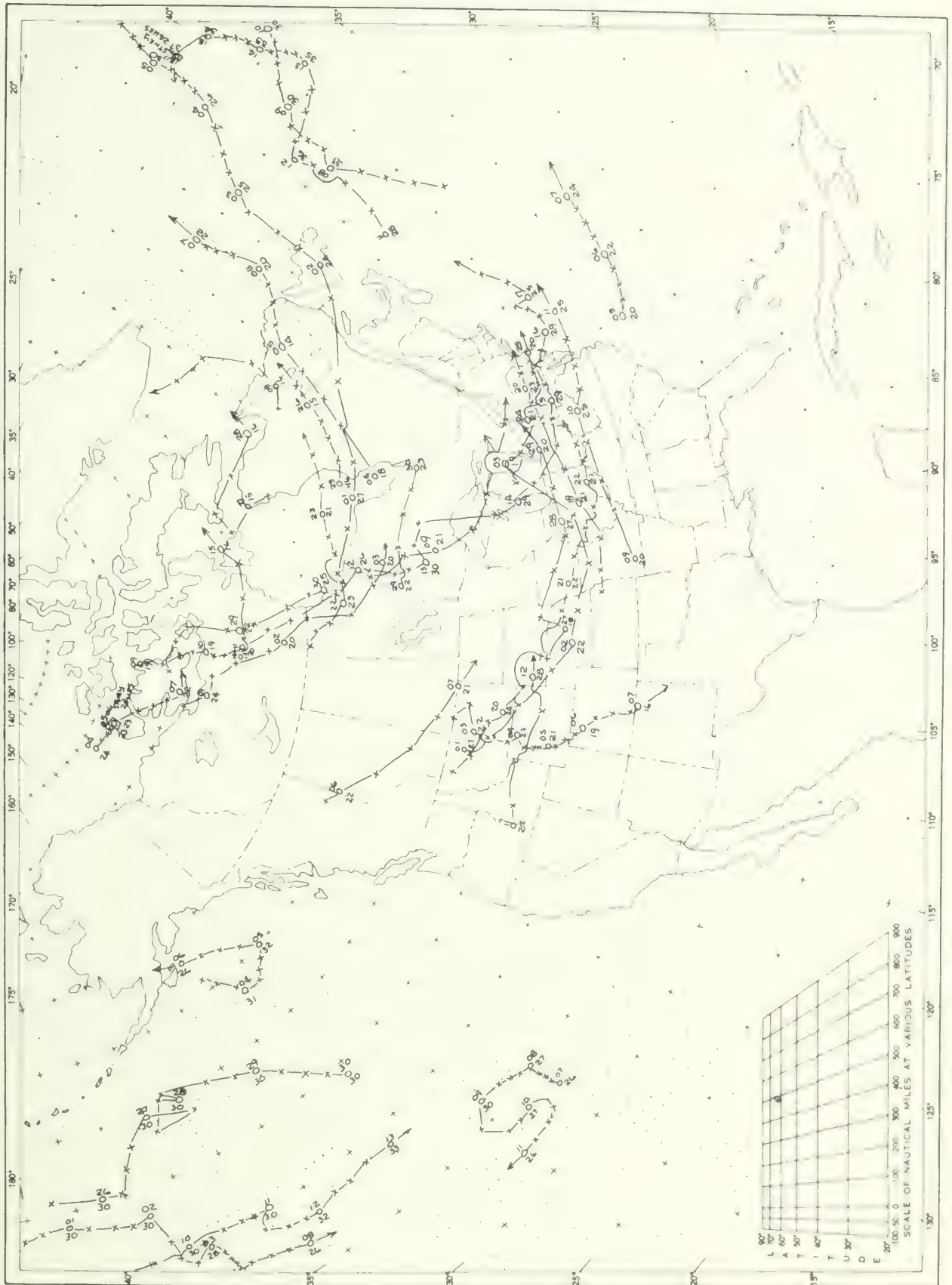
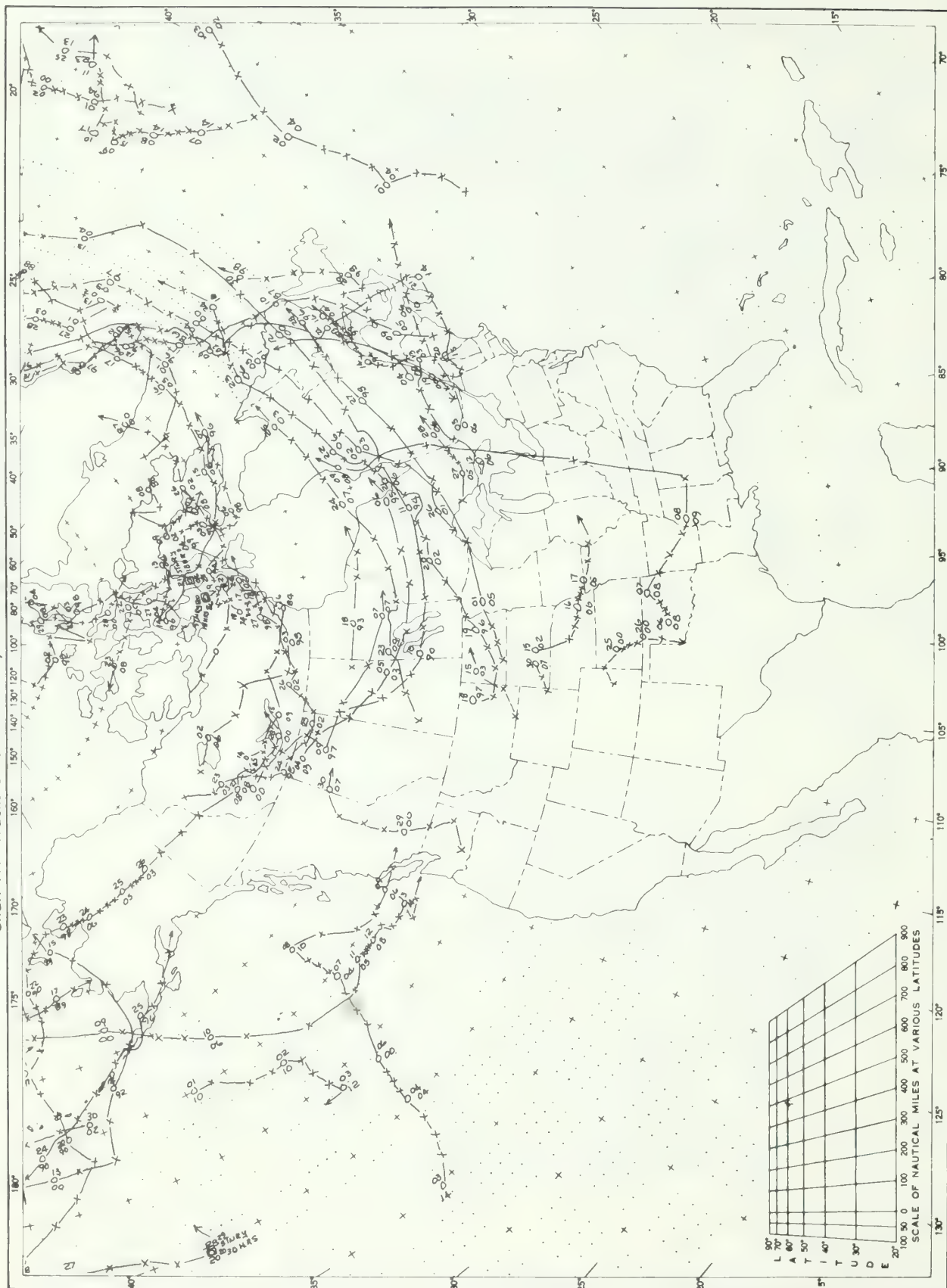




Chart IV. Tracks of Centers of Cyclones at Sea Level, June 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar. X's indicate intervening 6-hourly positions. Squares indicate position of stationery center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.





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JULY 1978

VOLUME 29

NUMBER 7

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JULY 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** July weather was dominated by two events. First, a series of cool air outbreaks moved regularly from the northern Plains to New England. As the cool air moved eastward, it was replaced by hot, humid air from the Gulf until the next cool outbreak. The second persistent event was an extension of the Bermuda high pressure system which reached from the mid-Atlantic States to Texas. The resultant southerly flow into the United States brought warm, moist air northward to encounter the cooler air and set off severe weather.

A low pressure system was located over southern Minnesota at the beginning of the month; heavy rain inundated the already-wet southern Minnesota area and moved on to Illinois, southern Michigan, and into Pennsylvania.

During the week of the 3d-9th, the low center moved off the East Coast through Pennsylvania and spread rain into southern New England. A high pressure area marked the cool air behind the storm system. The northeastern United States was blessed with cool, partly cloudy days. However, the backside of the high pressure brought warm, moist air from the Gulf of Mexico northward through the Plains causing widespread thunderstorms in the central and northern Plains and the lower Mississippi Valley. Hot weather ensued throughout the Plains until another push of cool air moved into the Dakotas to the end of the week.

By the 10th, the cool air had moved rapidly southward and eastward with showers and isolated thunderstorms occurring along the front marking the leading edge of the cooler air. The rapidly moving cold front moved off the East Coast by midweek and became stationary from the Carolinas to Oklahoma. The northern Plains

and the Northeast had a cool week, but the south central States were hot. By the end of the week the warm air had returned to the northern Plains. Heavy rain drenched an area from Missouri to Florida, along the southeastern coast, and into North Carolina and parts of Virginia. Most of the West was warm. Showers and thunderstorms fell from Arizona to Colorado.

In the week beginning on the 17th, another slow-moving cold front trekked from Montana to New England. Heavy rain and thunderstorms hit from Nebraska to Wisconsin and parts of Minnesota. Severe local flooding was reported in these States as more than 3 inches fell. Thunderstorms were a daily occurrence along the Gulf Coast and welcome showers dampened portions of the Texas Panhandle. Hot weather held sway over much of the Nation. The mercury climbed to over 100° in Texas and the Southwest. Early in the week, readings reached the mid-90's in the northern Plains, and by midweek, near 90° in the Pacific Northwest.

The last week of the month saw rain fall in nearly all the Nation. A trough of low pressure in the Southwest and a cool front moving through the Northwest caused showers in much of the West with some isolated heavy showers in parts of Arizona and Nevada.

Elsewhere, the lower Mississippi Valley, Ohio Valley, southern Appalachians, and Gulf Coast bore the brunt of the severe weather. Parts of Alabama and Florida measured downpours of over 5 inches.

As the month ended, some relief from the heat was felt in the South; however, the central Plains approached 100° and the mid-90's extended to South Dakota.

# TROPICAL STORM AMELIA

July 5 - 31, 1978

National Hurricane Center, NOAA  
Miami, Florida

The disturbance that became Amelia moved off the African coast as a tropical wave on July 19. It remained a weak system without much deep convection until it reached the central Caribbean Sea on the 26th. A marked increase in convection was evident on the 28th as the disturbance approached the Yucatan Peninsula. On the 29th, as the wave moved off the Yucatan Peninsula into the southwestern Gulf of Mexico, convection increased and the cloud mass took on a circular appearance on satellite pictures. No circulation was observed at this time.

By the morning of the 30th, the disturbance had turned toward the northwest and cloud banding suggested that a circulation center was developing. This assessment was confirmed by a U.S. Air Force reconnaissance flight during the early afternoon of the 30th, at which time the system was designated a tropical depression. Amelia became a tropical storm later in the afternoon after surface winds of 45 kt were estimated by the reconnaissance flight. Lowest surface pressures measured by the flight did not support tropical storm winds, but reports from land stations indicated the pressure might have been as low as 1005 mb. Classification by the Miami Satellite Services Field Station indicated a maximum wind of no more than 30 kt during the life of the storm.

The center of the storm, never well defined, skirted the south Texas coast during the afternoon and evening of the 30th, and crossed the coast south of Corpus Christi during the night of the 30th-31st. The surface center of circulation could be traced inland to the west of San Antonio during the night of July 31 - August 1, after which it became indistinct.

The increase in convection noted on the 26th occurred as the disturbance came under anticyclonic flow at 200 mb. The flow over the developing system became increasingly anticyclonic on subsequent days as it turned toward the northwest, thicknesses in the 1000-200 mb layer increased and the vertical shear decreased. These conditions along with warm sea-surface temperatures favored development. The intensification ended when the center passed over land. The moisture-laden tropical air that moved into Texas during and after the storm's inland passage provided the water which later produced catastrophic flooding over portions of the state.

Brownsville, TX, the closest United States weather station to the center of the storm at landfall, reported highest sustained winds of 34 kt with gusts to 38 kt. The U.S. Coast Guard at South Padre Island reported 40 kt winds.

At Corpus Christi, highest sustained winds were 33 kt and the peak gust was 50 kt. A Coast Guard Cutter 60 miles southeast of Corpus Christi reported gusts of 65 to 70 kt. Rainfall was generally light in the Brownsville area, mostly less than one-half inch. Amounts of 4 to 5 inches were reported at various points farther north along the coast.

Damage in the coastal areas consisted mainly of the sinking of several shrimp boats and beaching of sail boats off Brownsville. Some trees and fences were blown down and there was an undetermined amount of damage to crops, primarily cotton. Extremely heavy rains fell inland in Texas, after the system no longer had a discernable surface low-pressure center. Disastrous flooding occurred in a number of river basins. Especially hard hit were the Guadalupe river and its tributaries. There were around 30 fatalities and extensive damage occurred.

The heaviest rains and most severe flooding did not take place until two to three days after the center of the storm moved inland. For several days there was a continuous flow of moist tropical air from the southeast. As has happened in the past when tropical storms move into Texas, the rainfall was greatly enhanced by the orographic effect of the Edwards Plateau. Amounts up to 30 inches were reported over a two-day period.



# TROPICAL STORM AMELIA

## Preliminary Report

<u>DATE</u>	<u>TIME</u> <u>(GMT)</u>	<u>LATITUDE</u> <u>(NORTH)</u>	<u>LONGITUDE</u> <u>(WEST)</u>	<u>PRESSURE</u> <u>(MB)</u>	<u>WIND</u> <u>(KT)</u>	<u>STAGE</u>
7/30	1500	25.1	96.7	1008	30	Tropical Depression
	1800	25.7	97.0	1006	30	
7/31	0000	26.4	97.4	1005	45	Tropical Storm
	0600	27.2	97.8	1007	40	
	1200	28.0	98.2	1008	35	Tropical Depression
	1800	28.6	98.7	1010	30	
8/1	0000	29.3	99.2	1010	25	

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

JULY 1978

STATE	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least	
		°F			°F		In.			In.	
Alabama	Livingston 2 SW	102	1	Valley Head	48	17	Fairhope 2 NE	23.67	Ashland 2 SSE	.65	
Alaska	Copper Center	89	31	Umat	28	15	Yakutat WSO AP	9.57	Barter Island WSO AP	.18	
Arizona	Bullhead City	122	19	Fort Valley	26	5	Nogales	6.09	5 Stations	.00	
Arkansas	Jonesburg FAA AP	107	8	Calico Rock	36	29	Black Rock	8.08	Okay	.12	
California	Mecca Fire Station	121	17	White Mountain 2	22	3	White Mountain 2	2.25	274 Stations	.00	
Colorado	3 Stations	107	29	Independence Pass 5 SW	22	5	Timpas 13 SW	5.56	2 Stations	.00	
Connecticut	Hartford WSO AP	99	23	2 Stations	38	2	Middletown 4 W	5.42	Barkhamsted	1.98	
Delaware	Dover	99	24	Georgetown 5 SW	49	13	Dover	6.57	Middletown 1 WSW	3.97	
Florida	2 Stations	100	3	Alexander Springs 3 SE	60	23	Cross City 2 WNW	17.28	Key West WSO AP	1.40	
Georgia	Dublin 3 S	102	1	Blairsville Exp Station	54	17	Folkston 3 SW	14.88	Embry	.80	
Hawaii	2 Stations	93	28	Mauna Loa Slope Obs	35	24	Pihonua 89	38.20	10 Stations	.00	
Idaho	Brownlee Dam	108	27	2 Stations	30	21	Grangeville	4.01	3 Stations	1	
Illinois	De Quoin 4 SE	103	1	Watseka 2 NW	47	11	Sainte Marie	10.06	Harrisburg Disposal Plt	1.31	
Indiana	2 Stations	100	1	Angola	40	12	Elliston	9.80	Monroeville 3 ENE	1.32	
Iowa	Shenandoah 1 NE	100	3	2 Stations	45	11	Lake Park	12.37	Le Claire Lock and Dam 14	2.20	
Kansas	Kingman	112	29	5 Stations	52	24	Belleville	7.25	Thayer	.07	
Kentucky	Golden Pond 8 N	103	31	Gray Hawk	48	12	Eastern Kentucky University	10.34	Murray	1.30	
Louisiana	2 Stations	104	14	Olla 3 SSW	62	18	Thibodaux	12.03	Epps 6 W	.54	
Maine	Saco	97	8	Squa Pan Dam	33	31	Brassua Dam	6.38	2 Stations	.74	
Maryland	Baltimore WSO CI	101	23	Oakland 1 SE	39	12	Oakland 1 SE	9.58	Fredrick Police Barracks	3.18	
Massachusetts	Chester 2	105	23	Chester 2	32	2	Nantucket FAA AP	6.35	Boston WSO AP	1.48	
Michigan	Monroe	98	27	Herman	30	30	Chatham Exp Farm	7.70	Houghton Lake 6 WSW	.70	
Minnesota	Montevideo 1 SW	99	17	Tower 3 S	32	10	Elgin	15.04	Alexandria FAA AP	1.38	
Mississippi	Fulton 3 W	102	30	Iuka	58	18	Saucier Exp Forest	14.36	Houston 2 NE	.31	
Missouri	3 Stations	106	30	Alton	51	28	Fisk	10.84	Stockton Dam	1.18	
Montana	2 Stations	102	24	Cooke City	28	22	Sweetgrass	7.21	Stevensville	.30	
Nebraska	Beaver City	111	8	Agate 3 E	43	22	Ellsmere 9 ENE	11.50	Lamar	1.03	
Nevada	Sunrise Mani Las Vegas	117	15	Spring Valley State Park	25	4	Tuscarora	2.49	15 Stations	.00	
New Hampshire	Concord WSO AP	100	23	Mount Washington	28	1	Mount Sunapee	4.45	Deering	.91	
New Jersey	Chatsworth	99	23	2 Stations	43	12	Toms River	7.46	Branchville	2.34	
New Mexico	2 Stations	108	18	Gallup 5 E	30	7	Picacho	4.82	2 Stations	.00	
New York	New York Laurel Hill	102	23	2 Stations	30	2	Greenport Power House	6.64	Theresa	.62	
North Carolina	Concord 2 SW	100	23	2 Stations	46	18	Longwood	11.93	Asheville WSO AP	.63	
North Dakota	2 Stations	100	23	2 Stations	36	9	Adams 7 SSW	5.97	Oakes 2 S	.76	
Ohio	Toledo Blade	103	21	Plymouth 2 WSW	36	12	Cheviot	8.50	2 Stations	.96	
Oklahoma	4 Stations	112	18	2 Stations	56	28	Hollow	4.18	2 Stations	T	
Oregon	Pelton Dam	109	25	Chemult	28	11	Kent	2.90	2 Stations	.00	
Pennsylvania	Marcus Hook	100	22	Clermont 4 NW	33	12	Chalk Hill 2 ENE	9.16	Erie WSO AP	.65	
Puerto Rico	Magueyes Island	97	31	Cerro Maravilla	52	16	Hacienda Constanza	14.35	Ponce City	.10	
Rhode Island	Providence WSO AP	97	23	Kingston	41	2	Newport	3.90	Woonsocket	2.06	
South Carolina	2 Stations	103	2	Caesars Head	55	3	Hilton Head	11.90	Johnston 3 NNW	.60	
South Dakota	Porcupine 16 NW	105	4	Custer	41	24	Centerville 6 SE	10.61	Raymond 3 NE	1.62	
Tennessee	2 Stations	101	31	Tazewell	48	12	Statesville	10.16	Moscow	.44	
Texas	2 Stations	116	15	Midland/Odessa WSO AP	53	23	Port Arthur City	14.78	9 Stations	.00	
Utah	Hanksville	111	29	Bryce Canyon N.P. 1 S	28	4	Capitol Reef Natl Park	1.98	17 Stations	.00	
Vermont	Vernon	99	24	4 Stations	35	3	Saint Johnsbury	5.53	Canaan	1.43	
Virginia	4 Stations	100	24	Burkes Garden	41	13	Stuart 1 SSE	9.98	Independence 2	1.83	
Virgin Islands	Alex Hamilton Field FAA	93	26	Catherinesburg	68	6	Cruz Bay	4.60	Anna's Hope	1.55	
Washington	2 Stations	107	24	2 Stations	30	11	Tolt South Fork Reservoir	4.43	Point Grenville	.06	
West Virginia	Logan	98	24	Canaan Valley	33	12	Mannington 1 W	11.70	Moundsville	2.52	
Wisconsin	Manitowoc	93	19	Newald 4 N	34	28	Ontario 1 SSE	13.29	Beaver Dam	2.33	
Wyoming	Lagrange	102	28	South Pass City	23	10	Redbird	5.33	Evanston 1 E	.02	

## METRIC UNITS

JULY 1978

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CLIMATOLOGICAL DATA

METRIC UNITS

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)							
		Station	Sea level	Average		Departure from normal	Date		No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours		Snow, ice pellets	Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)		Date						
				Average maximum	Average minimum		Highest	Lowest	Date	Max 32.2 °C or above				Min. 0 °C or lower	No. of days							With thunderstorms	Maximum depth on ground				
																								Speed	Direction	No. of days	Fastest mile (1.6 kilometers)
Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10																									

| CALIFORNIA | 2297 | 814.4 | 1013.3 | 26.7 | 8.4 | 18.0 | 0.2 | 31.1 | 28.4 | 3.3 | 6 | 0 | 0 | 6.7 | 43 | 26 | -3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## CLIMATOLOGICAL DATA

METRIC UNITS

JULY 1978

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)	%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min. 0 °C or lower	Average dew point	Average relative humidity					Precipitation		Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																mm	mb			°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm



# CLIMATOLOGICAL DATA

METRIC UNITS

JULY 1979

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)	Possible sunshine (sunrise to sunset)												
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Average relative humidity	Total	Departure from normal			Greatest in 24 hours	With thunderstorms	Total	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction				
m	mb	mb	C	C	C	C	C	C	C	C	C	%	mm	mm	mm	mm	mm	mm	mm	mm	mm/s	mm/s	mm/s	mm/s					
MINNESOTA																													
ST CLOUD	313	977.0		26.2	13.9	20.1	-1.1	32.8	25+	7.2	23	2	0	113	30	33	10	0	0	0	0	0	0	0	0				
MISSISSIPPI																													
JACKSON	94	1004.1	1013.8	34.2	22.8	28.6	0.9	37.2	5	20.6	27+	28	0	93	-16	33	10	14	0	0	0	0	0	0	0				
MEMPHIS	88	1005.4	1010.3	34.0	21.1	27.6	0.2	36.7	3	18.3	27	28	0	97	-33	34	11	14	0	0	0	0	0	0	0				
MISSOURI																													
COLEBURN REGIONAL	270	983.1	1014.7	32.0	20.3	26.2	1.0	37.2	29	15.6	31	20	0	116	17	28	6	9	0	0	1.1	13	17.0	NW	9	11	3.2	67	
KANSAS CITY	309	978.0	1013.9	31.7	20.5	26.3	1.0	37.8	54	15.6	10	19	0	139	-39	22	10	8	0	0	1.3	15	20.6	NW	8	14	8	6.7	
ST JOSEPH	247	975.0	1013.3	31.7	20.6	26.2	0.5	36.7	25+	15.6	24	20	0	118	-28	22	10	9	0	0	1.0	22	18.8	NW	14	8	4.7	79	
ST LOUIS	169	995.6	1015.3	30.9	20.7	25.8	-0.1	36.1	1	15.0	11	17	0	153	59	64	9	6	0	0	1.0	22	18.8	NW	14	8	4.7	67	
SPRINGFIELD	386	970.5	1014.8	34.1	20.7	27.4	1.9	39.4	9	16.7	31+	24	0	118	26	57	6	7	0	0	1.8	17	17.4	NE	14	9	3.0	82	
MONTANA																													
BILLINGS	1087	892.3	1014.1	26.9	13.1	20.0	-2.1	36.1	24	10.0	22	8	0	39	17	14	11	13	0	0	0.8	33	17.4	NW	10	14	5.1	62	
GLASGOW	696	933.3	1013.7	26.7	12.3	19.5	-1.9	35.0	24	6.1	9	7	0	67	30	21	12	7	0	0	0.8	31	17.9	NW	12	13	4.7	64	
GREAT FALLS	1114	889.9	1015.1	27.3	11.6	19.5	-1.2	37.2	24	7.2	20	7	0	51	18	24	12	8	0	0	1.3	24	15.6	NW	13	7	5.0	82	
HAVER	1788	928.5	1015.3	28.4	11.4	19.9	-1.1	38.9	24	6.1	19	8	0	74	47	24	12	8	0	0	1.1	25	16.5	NW	11	12	4.7	69	
HELENA	1167	882.2	1015.3	27.8	11.2	19.6	-0.4	33.9	27+	7.2	21	10	0	72	24	12	8	0	0	0	1.2	30	16.3	NW	10	13	4.7	69	
KALISPELL	904	912.6	1014.2	26.4	9.6	18.1	0.1	33.3	24	3.3	11	4	0	64	24	14	10	0	0	0	0.5	16	10.3	NW	14	10	4.5	71	
PILES CITY	801	922.1	1013.1	28.9	14.9	21.9	-1.6	37.2	15	10.6	9	9	0	111	36	64	24	7	0	0	0.4	32	19.2	NW	15	12	4.5	71	
MISSOULA	972	905.5	1015.9	27.4	9.6	18.5	-0.7	35.0	26	3.9	11	8	0	14	-9	7	7	8	0	0	1.0	31	19.2	NW	12	11	4.5	71	
NEBRASKA																													
GRAND ISLAND	561	948.9	1013.3	31.3	17.8	24.0	0.0	41.1	5+	12.2	23	12	0	73	-3	34	12	11	0	0	1.7	13	15.6	NW	13	12	4.5	71	
LINCOLN	339	971.2	1013.3	31.2	18.6	24.9	-0.3	40.0	5	12.2	23	13	0	128	46	38	13	15	0	0	0.8	16	17.0	NW	15	12	4.7	71	
NORFOLK	471	959.0	1013.5	30.6	17.6	24.9	-0.1	39.4	4	12.2	23	12	0	114	33	10	11	11	0	0	0.8	16	17.0	NW	15	12	4.7	71	
NORTH PLATTE	866	911.4	1013.0	31.8	13.4	22.6	0.1	38.9	5	9.4	23	12	0	194	18	39	12	12	0	0	1.5	11	18.8	NW	1	13	4.2	83	
OMAHA	289	968.4	1012.9	30.8	18.4	25.2	0.1	37.7	5	13.5	23	12	0	150	55	49	10	12	0	0	0.8	15	8.9	NW	9*	8	5.1	55	
OMAHA (NORTH)	289	968.4	1012.9	30.8	18.4	25.2	0.1	37.7	5	13.5	23	12	0	150	55	49	10	12	0	0	0.8	15	8.9	NW	9*	8	5.1	55	
SCOTTSBLUFF	1266	880.5	1012.9	31.9	15.7	23.8	-0.7	38.3	3	11.3	22	19	0	189	-9	49	10	12	0	0	1.3	9	17.4	NW	1	17	3.5	81	
VALENTINE	1784	923.1	1012.9	29.8	15.0	22.4	-0.9	36.7	4	10.0	23+	11	0	122	78	44	11	13	0	0	0.5	12	16.8	NW	1	14	4.1	81	
NEVADA																													
ELY	1539	845.2	1012.4	32.8	9.1	21.0	0.2	39.4	31+	2.6	4	18	0	13	-4	13	2	4	0	0	1.0	22	11.2	NW	1	20	3.0	80	
ELKO	1904	810.7	1011.2	31.0	7.8	19.4	-0.1	35.0	31+	0.6	4	15	0	15	-11	5	1	1	0	0	0.3	21	16.5	SE	26	3	2.7	80	
LAS VEGAS	659	934.3	1008.3	41.6	24.9	33.3	1.3	46.1	31	18.9	9	31	0	3	-2	3	1	1	0	0	0.4	21	15.2	NW	28	22	1.5	92	
RENO	1342	866.6	1012.9	32.8	8.8	20.8	0.1	38.3	25	3.3	3	20	0	5	-2	3	2	2	0	0	1.4	21	12.3	NW	25	7	1.8	98	
WINNEVOCA	1311	866.6	1012.2	34.1	10.0	22.1	0.4	40.0	31+	1.1	4	22	0	4	-2	3	2	2	0	0	1.2	30	12.1	NW	21	8	2.5	94	
NEW HAMPSHIRE																													
CONCORD	104	1003.1	1015.5	29.3	12.6	20.9	0.0	37.8	23	3.3	2	11	0	27	-52	10	9	4	0	0	0.9	24	10.7	NW	1	8	5.6	70	
MT WASHINGTON OBS	1906			12.6	5.9	9.3	-0.1	19.4	8	-2.2	1	0	3	93	-77	18	14	6	0	0	0	0	4.6	4.6	NW	1	12	8.0	41
NEW JERSEY																													
ATLANTIC CITY	20	1013.5	1016.0	27.4	17.2	22.3	-1.7	35.0	23	10.6	12	3	0	147	36	97	8	3	0	0	1.2	21	11.6	SE	10	8	3.9	53	
ATLANTIC CITY U	3	1015.2	1016.1	28.4	18.4	23.9	-0.7	32.8	22	13.3	12+	4	0	107	2	62	7	9	0	0	0.9	24	12.5	NW	27	12	6.1	45	
NEWARK	2	1015.2	1016.1	24.6	19.4	25.9	-0.1	36.7	23	13.3	4	8	0	127	24	63	9	3	0	0	0	0	14.8	NW	27	12	6.1	45	
TRENTON U	17			27.4	18.6	23.0	-1.4	35.0	23	12.8	5	4	0	126	6	59	10	0	0	0	0	0	14.8	NW	27	12	6.1	45	
NEW MEXICO																													
ALBUQUERQUE	1619	840.2	1011.2	36.0	19.1	27.6	1.6	39.4	29	15.0	7	30	0	6	-29	3	4	8	0	0	0.5	13	18.8	E	26	17	3.3	80	
CLAYTON	1513	828.8	1011.0	32.8	16.9	24.9	1.8	37.8	17	13.9	10	21	0	29	-41	10	7	6	0	0	0	0	13	15.2	SE	29	11	2.7	96
ROSWELL	1112	890.6	1011.0	35.7	21.4	28.6	2.3	40.0	17	17.2	12	28	0	13	-30	5	5	0	0	0	1.7	13	15.2	SE	29	19	1	2.7	96
NEW YORK																													
ALBANY	84	1005.4	1015.8	27.4	13.5	20.5	-1.7	35.0	23	6.4	2	5	0	103	23	49	12	9	0	0	1.4	19	10.3	NW	27	6	5.6	65	
BINGHAMTON	48	990.2	1015.8	28.9	15.8	21.3	-0.3	35.8	23	8.4	4	3	0	63	-33	27	11	4	0	0	1.5	24	11.2	NW	27	3	6.6	54	
BUFFALO	214	990.2	1015.8	28.9	15.8	21.3	-0.3	35.8	23	8.4	4	3	0	63	-33	27	11	4	0	0	2.0	24	11.2	NW	27	3	6.6	54	
NEW YORK U	46	1013.5	1016.7	27.6	19.5	23.0	-1.2	35.0	23	14.4	13	3	0	118	20	73	8	0	0	0	0.7	22	11.5	NE	29	13	6.7	70	



## METRIC UNITS

JULY 1979

[illegible]

## CLIMATOLOGICAL DATA

METRIC UNITS

JULY 1978

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind				No of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		Station Q	Sea level	Average maximum		Average minimum		Average		Departure from normal		Highest	Date	Lowest	Date	Max 32 °C or above	Min 0 °C or lower	Average dew point	Average relative humidity	Total	mm	Departure from normal			25 mm. or more	With thunderstorms	Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed m/s	Direction	Date	Clear 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				C	F	C	F	C	F	C	F												C	F														C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F



# CLIMATOLOGICAL DATA

METRIC UNITS

JULY 1970

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)		°													
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Total	mm	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms		Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)		
												Max 32.2 °C or above	Min 0 °C or lower																			Average dew point	Average relative humidity
WASHINGTON	59	1010.5	1017.6	25.3	11.4	18.4	0.9	37.2	22	6.7	12	4	0	12.8	76	20	19	4	2	0	0	0.9	22	7.2	21 23+	7	12	12	5.8				
	59	1011.2	1018.6	20.8	10.2	15.5	0.5	32.8	21	11.1	19	2	0	11.1	80	43	18	12	1	0	0	1.3	26	5.4	N 20+	5	7	19	7.1				
	54	1011.2	1018.6	20.8	10.2	15.5	0.5	32.8	21	11.1	19	2	0	11.1	80	43	18	12	1	0	0	1.3	26	5.4	N 20+	5	7	19	7.1				
	122	1001.6	1017.5	24.6	13.0	18.6	-0.2	35.0	22	11.1	31*	1	0	9.4	57	35	19	6	1	0	0	1.3	20	7.2	N 20+	9	10	12	5.7				
	718	931.6	1016.2	27.3	12.9	20.2	-0.8	36.6	23	8.3	11	9	0	8.9	53	45	35	20	6	3	0	1.4	18	14.8	N 1	16	4	11	4.8				
	1206	881.8	1016.2	18.1	8.9	13.5	0.1	27.8	22	3.3	10	0	0	0	0	57	18	20	12	0	0	0	0	0	0	17	8	6	3.4				
	280	91.2	16.3	31.2	16.3	23.8	-0.4	36.4	25	12.8	11	15	0	0	48	21	12	7	4	5	0	1.9	29	11.6	31 15	16	9	6	3.7				
	321	976.0	1013.6	30.6	12.7	21.7	0.2	36.3	23	7.2	10	13	0	0	48	7	3	3	4	5	0	0	0	0	0	0	0	0	0	0	0		
WEST INDIES																																	
	4	1014.9	1017.2	31.7	25.1	28.4	1.2	33.3	23+	22.8	5	12	0	23.9	79	86	75	18	17	3	0	4.3	0	11.6	E 3	5	16	10	6.2				
WEST VIRGINIA																																	
	763	930.2	1016.6	25.6	15.6	20.6	-0.5	30.0	23	7.2	12	0	0	16.1	77	79	23	16	12	0	0	1.3	23	10.3	1 10	4	13	14	7.3				
	264	981.1	1016.6	28.4	17.9	23.2	-0.7	33.3	23+	10.0	12	5	0	18.9	79	250	122	81	14	14	0	0	1.0	22	15.6	30 31	7	6	18	6.0			
	294	986.8	1016.2	30.5	19.1	24.9	0.2	36.2	23	6.1	12	7	0	17.8	71	185	59	43	14	11	0	0	0.8	22	10.3	32 1	3	12	16	6.9			
	187			27.7	18.4	23.1	-0.9	33.8	22+	11.7	12	4	0	0	101	101	8	39	14	11	0	0	0	0	14.3	NE 8	5	10	16	7.1			
MISCONGIN																																	
	208	989.2	1014.7	25.3	13.9	19.6	-1.1	31.1	19	7.2	30	0	0	15.0	76	153	74	42	13	4	0	1.2	20	11.6	5 17+	5	12	14	6.4				
	194	990.2	1014.7	26.5	16.4	21.4	-1.2	32.2	5	10.0	11+	1	0	16.7	78	23	144	97	13	8	0	0	1.1	21	14.3	5 17+	5	12	14	6.4			
	262	983.7	1014.7	26.9	14.9	20.9	-0.2	32.2	6	7.6	11	1	0	16.7	78	112	65	44	11	5	0	0	0.8	19	20.1	5 17+	5	12	14	6.4			
	201	996.2	1015.1	24.9	15.8	20.3	-0.7	31.1	22	10.6	11	0	0	16.7	81	112	65	44	11	5	0	0	0.8	19	20.1	5 17+	5	12	14	6.4			
WYOMING																																	
	1627	830.8	1013.7	30.1	11.7	20.9	-0.8	36.1	27	6.7	22	11	0	6.7	48	67	42	34	12	13	0	0	0.5	30	21.5	28 18	14	12	5	3.8			
	1867	816.8	1013.2	28.6	12.7	20.4	-0.2	33.9	15	6.7	22	18	0	5.6	45	25	21	10	7	10	0	0	0.8	25	19.2	5 20+	15	14	2	3.9			
	1996	831.7	1013.6	29.4	12.5	21.0	-0.4	35.6	27	5.6	22	9	0	5.0	41	21	5	9	5	13	12	0	1.4	24	17.9	5 18	15	12	4	3.6			
	1206	886.5	1015.0	27.6	10.9	19.3	-2.1	33.9	27+	5.0	22	4	0	11.1	63	44	17	14	13	12	0	1.1	31	16.5	5 18	11	12	8	5.7				



## (Base 65°F.)

JULY 1978

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# COOLING DEGREE DAYS

(Base 65 F.)

JULY 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA	515	1170	1131	HAWAII	383	2064	1644	NEBRASKA	355	705	621	SOUTH CAROLINA	505	1280	1201
BIRMINGHAM	477	1030	1054	HONOLULU	439	2201	2224	GRAND ISLAND	371	659	609	CHARLESTON	540	1398	1341
MOBILE	560	1229	1204	KAMAHU	487	2513	1974	LINCOLN	370	634	563	COLUMBIA	466	1064	1235
MONTGOMERY	547	1239	1297	LIMU	425	2097	1948	NORTH PLATTE	387	752	710	GRANVILLE-SPRINGBRO	403	854	932
ALASKA				KAHUA				OMAHA	386	752	710				
ANCHORAGE	1	1	0	KAHUA				OMAHA (NORTH)	317	634	574	SOUTH DAKOTA			
ANNETTE	5	6	14	KAHUA				SCOTTSDALE	316	530	407	ABERDEEN	179	300	348
BARBER	0	0	0	KAHUA				VALENTINE	239	429	443	HURON	196	336	438
BARBER ISLAND	0	0	0	KAHUA				NEVADA				RAPID CITY	214	322	374
BETHLEHEM	0	0	0	KAHUA				ELKO	179	198	194	SIOUX FALLS	202	367	442
BETTES	21	21	17	ILLINOIS	557	1234	1294	FLY	110	117	114	TENNESSEE			
BIG DELTA	39	39	28	CHICAGO	227	419	394	LAS VEGAS	841	1847	1434	BRISTOL	299	562	651
COLD BAY	0	0	0	CHICAGO AIRWAY	249	499	545	RENO	146	182	196	CHATTANOOGA	307	1069	965
FAIRBANKS	27	27	46	CHICAGO	288	578	554	WINNEBAGO	234	270	253	KNOXVILLE	432	918	932
GULF BAY	0	0	0	CHICAGO	316	605	594					MEMPHIS	590	1405	1207
HOMER	0	0	0	CHICAGO	238	473	437	NEW HAMPSHIRE				NASHVILLE	489	1036	1002
JUNEAU	0	0	0	CHICAGO	358	763	681	CONCORD	198	327	219	OAK RIDGE	342	668	816
KING SALMON	0	0	0	IDAHO				MT WASHINGTON OBS	0	0	0				
KODIAK	0	0	0	EVANSVILLE	444	946	835					TEXAS			
KOTZEBE	1	1	0	FIRST AVENUE	251	480	457	NEW JERSEY				ABILENE	751	1934	1424
MC GRATH	0	0	14	INDIANAPOLIS	382	778	680	ATLANTIC CITY	233	395	506	AMARILLO	497	968	842
NOME	0	0	0	SOUTH BEND	218	461	415	ATLANTIC CITY U	146	267	436	AUSTIN	670	1801	1650
ST. PAUL ISLAND	0	0	0	IOWA				NEWARK	375	601	597	BROWNSVILLE	680	2364	2233
TALKEETNA	2	2	6	AURINGTON	284	569	604	TRENTON U	275	529	577	CORPUS CHRISTI	647	2061	1973
UNALASKA	3	3	0	NEW HAVEN	341	681	567	ALBUQUERQUE	571	890	789	DALLAS FT WORTH	733	1699	1437
VALDEZ	0	0	0	NEW HAVEN	210	379	374	CLAYTON	372	583	452	DEL RIO	710	2158	2005
VALDEZ	0	0	0	SIOUX CITY	280	444	384	ALBUQUERQUE	571	890	789	EL PASO	612	1572	1280
VALDEZ	0	0	0	WATERLOO	230	488	424	ALBUQUERQUE	372	583	452	GALVESTON	595	1635	1647
ARIZONA				KANSAS				ALBUQUERQUE	571	890	789	HUUSTON INTERCON	584	1578	1637
FLAGSTAFF	87	112	85	CONCORDIA	431	814	749	ALBUQUERQUE	571	890	789	LUBBOCK	562	1315	1006
PHOENIX	928	2301	1931	DOUGLAS CITY	577	1017	820	ALBUQUERQUE	571	890	789	MIDLAND	531	1369	1307
TUCSON	721	1744	1504	GOULD	365	576	543	ALBUQUERQUE	571	890	789	PORT ARTHUR	627	1846	1585
WINSTON	435	744	691	TOPEKA	390	810	407	ALBUQUERQUE	571	890	789	SAN ANGELO	634	1687	1589
YUMA	918	2346	2258	WICHITA	631	1145	973	ALBUQUERQUE	571	890	789	SAN ANTONIO	680	1773	1725
ARKANSAS				KENTUCKY				ALBUQUERQUE	571	890	789	VICTORIA	622	1812	1777
FORT SMITH	632	1222	1161	COVINGTON	315	613	641	ALBUQUERQUE	571	890	789	WACO	757	1912	1610
LITTLE ROCK	599	1349	1124	LEXINGTON	349	694	713	ALBUQUERQUE	571	890	789	WICHITA FALLS	777	1694	1486
NO. LITTLE ROCK	576	1241	1138	LOUISVILLE	425	878	745	ALBUQUERQUE	571	890	789				
CALIFORNIA				LOUISIANA				ALBUQUERQUE	571	890	789	VERMONT			
BAKERSFIELD	655	1419	1194	BATON ROUGE	567	1005	1514	ALBUQUERQUE	571	890	789	BURLINGTON	194	337	253
BISHOP	353	545	616	LAKE CHARLES	541	1048	1571	ALBUQUERQUE	571	890	789				
BULL CANYON	139	143	143	NEW ORLEANS	533	1073	1554	ALBUQUERQUE	571	890	789	VIRGINIA			
BUREAU U	0	0	0	SHREVEPORT	637	1504	1440	ALBUQUERQUE	571	890	789	LYNCHBURG	305	639	666
FRESNO	540	1076	924	MAINE				ALBUQUERQUE	571	890	789	NORFOLK	352	743	821
LONG BEACH	240	607	184	CARIBOU	97	170	89	ALBUQUERQUE	571	890	789	RICHMOND	393	819	805
LOS ANGELES	92	283	221	PORTLAND	138	166	142	ALBUQUERQUE	571	890	789	ROANOKE	347	676	614
LOS ANGELES U	269	688	483	MARYLAND				ALBUQUERQUE	571	890	789	WALLOPS ISLAND	280	461	603
MT SHASTA R	108	121	100	BALTIMORE	344	667	655	ALBUQUERQUE	571	890	789				
OAKLAND	15	45	42	MASSACHUSETTS				ALBUQUERQUE	571	890	789	WASHINGTON			
RED BLUFF	596	1136	1051	BLUE HILL OBS R	190	299	274	ALBUQUERQUE	571	890	789	OLYMPIA	64	108	60
SACRAMENTO	318	573	623	BOSTON	237	399	379	ALBUQUERQUE	571	890	789	QUILLAYUTE	18	25	8
SAN JAEAGO R	286	471	372	WORCESTER	138	227	247	ALBUQUERQUE	571	890	789	SEATTLE	66	112	111
SAN DIEGO	713	572	267	ALPENA	99	206	143	ALBUQUERQUE	571	890	789	SEATTLE-TACOMA	76	146	76
SAN FRANCISCO	0	31	34	DETROIT	210	445	443	ALBUQUERQUE	571	890	789	SPokane	144	186	214
SAN FRANCISCO U	0	40	5	DETROIT METR	200	385	397	ALBUQUERQUE	571	890	789	STAMPEDE PASS R	19	31	8
SANTA MARIA	0	12	27	FLINT	165	311	276	ALBUQUERQUE	571	890	789	WALLA WALLA U	316	484	488
STOCKTON	425	818	677	GRAND RAPIDS	188	373	391	ALBUQUERQUE	571	890	789	YAKIMA	198	271	295
COLORADO				HIGHTON LAKE	85	178	155	ALBUQUERQUE	571	890	789				
ALAMOSA	39	47	64	LANSING	170	333	329	ALBUQUERQUE	571	890	789	WEST INDIES	566	3341	2733
COLORADO SPRINGS	255	402	287	MARQUETTE U	76	154	121	ALBUQUERQUE	571	890	789				
DENVER	308	472	358	MUSKOGEE	109	195	270	ALBUQUERQUE	571	890	789	WEST VIRGINIA			
GRAND JUNCTION	420	743	681	SAULT STE MARIE	40	76	77	ALBUQUERQUE	571	890	789	BECKLEY	147	281	298
PUEBLO	411	648	485	MINNESOTA				ALBUQUERQUE	571	890	789	CHARLESTON	279	590	648
CONNECTICUT				BOLTON	70	121	100	ALBUQUERQUE	571	890	789	ELKINS	147	237	244
BRIDGEPORT	264	376	401	INTERNATIONAL FALLS	57	122	120	ALBUQUERQUE	571	890	789	HUNTINGTON	361	725	672
HARTFORD	228	446	365	MINNEAPOLIS	201	411	373	ALBUQUERQUE	571	890	789	PARKERSBURG	272	536	631
DELAWARE				WICHITA	147	298	264	ALBUQUERQUE	571	890	789				
WILMINGTON	273	509	579	ST CLOUD	130	255	275	ALBUQUERQUE	571	890	789	WISCONSIN			
DIST. OF COLUMBIA				MISSISSIPPI				ALBUQUERQUE	571	890	789	GREEN BAY	115	229	240
WASHINGTON D.C.	298	601	564	JACKSON	576	1361	1354	ALBUQUERQUE	571	890	789	LA CROSSE	187	364	434
WASHINGTON NATIONAL	434	919	829	MERIDIAN	572	1178	1323	ALBUQUERQUE	571	890	789	MADISON	171	319	286
FLORIDA				MISSOURI				ALBUQUERQUE	571	890	789	MILWAUKEE	138	275	255
APALACHICOLA U	496	1243	1484	COLUMBIA REGIONAL	444	826	752	ALBUQUERQUE	571	890	789				
DAYTONA BEACH	553	1748	1578	KANSAS CITY	444	826	752	ALBUQUERQUE	571	890	789	WYOMING			
FORT MYERS	580	1096	2026	ST LOUIS	420	865	803	ALBUQUERQUE	571	890	789	CASPER	170	244	259
JACKSONVILLE	527	1446	1444	SPRINGFIELD	511	870	794	ALBUQUERQUE	571	890	789	CHEYENNE	150	194	194
KEY WEST	638	2471	2754	MONTANA				ALBUQUERQUE	571	890	789	LANDER	179	235	218
LAKELAND	530	1030	1061	BILLINGS	140	223	287	ALBUQUERQUE	571	890	789	SHERIDAN	103	134	253
MIAMI	547	2098	2197	GLASSBORO	114	168	203	ALBUQUERQUE	571	890	789				
ORLANDO	550	1944	1779	GREAT FALLS	125	151	187	ALBUQUERQUE	571	890	789				
PENSACOLA	460	1544	1552	HAVRE	130	190</									

# STORM SUMMARY

JULY 1978

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				φ ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	†DAMAGE	DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE	
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS
Alabama	1	1										4				5									1		6	6	
Alaska																											3	?	
Arizona											17	5				4											8	C	
Arkansas	4	4			4				5		4	6	?	3	4	4													
California												?																	
Colorado	6	4		2	4			7	4			4		1	2	3											6	5	
Connecticut																4													
Delaware																3													
Florida	11	8		1	4							3		2	8	4													
Georgia	1	1			5						4	5			1	5													
Hawaii																													
Idaho								2	6		?	5	4		2	5											5	?	
Illinois	1	1			5			?	?	1	3	6	?	2	3	6											7	7	
Indiana	3	3			4			?	?			3	?		1	?											?		
Iowa	12	5			7			7	7			7	4		10	5											5	5	
Kansas	5	4			4			5	6		6	6	6		1	5													
Kentucky												?		2	6	5													
Louisiana	1	1			4							5		1															
Maine	1	1			3				5		2	6	6		1	5													
Maryland & DC	2	1			5			4	4		7	5	4			5											6	4	
Massachusetts	1	1			2							3				5													
Michigan							1	6	C	1	1	6	C		7	5													
Minnesota	13	8	4	38	8			5	6		1	5	6			5											8	6	
Mississippi																											3		
Missouri								3	6		6	6	3	1	2	5											6		
Montana	8	4		2	5			6	6					1	2														
Nebraska	7	6			6			6	7			6	6		1	5	4												
Nevada																													
New Hampshire	1	1			4				2	1	3	5	4			5											4		
New Jersey	*																												
New Mexico	1	1			3			5						1													4		
New York	1	1			4			?	3			4		1		4											3		
North Carolina	1	1	1		5			3	5			5	6	2	4	4	3										6		
North Dakota	13	7	5	35	6			5	5		2	5	5			5											5		
Ohio	3	2		1	5					1	5	6	C	1		4											4	C	
Oklahoma									5		8	5																5	
Oregon								?	?			3	?			?	?											5	
Pacific	*																												
Pennsylvania	2	1	1	26	6				4		39	6	5	1	7	4											4		
Puerto Rico												4	C																
Rhode Island	*																												
South Carolina	2	1			4							5		2	1	3													
South Dakota	13	8			7			7	7		2	7	7			5	5												
Tennessee								4	4			6				3	5												
Texas	13	10			5			4	5		3	6	4			1	?									21	53	?	6
Utah	*																												
Vermont														1	2	2													
Virginia																													
Virgin Islands	*							4	5		1	5	3			4											4	4	
Washington	2	2			6				2							5	5										8	C	
West Virginia	1	1			1							3	?	1		?													
Wisconsin	5	3			?			?	?		1	?	?			?	?										?	?	
Wyoming	7	6			2			7	6							1													



## Average monthly values

JULY 1978

BEISF, IN										BETHLEHEM, PA										BRUNSVILLE, TX										BUFFALO, NY										CAPE HATTERAS, NC									
914 M6										110 M6										1013 M6										991 M6										1017 M6									
SFC	31	871	15.8	0.0	1.4	1.2	31	1	27.5	23.7	22	41	31	7	25.2	23.1	10	2.4	31	218	17.4	1.4	19	1.8	31	4	23.7	21.7	27	1.0																			
1000							31	1	27.5	23.7	22	41	31	7	25.2	23.1	10	2.4	31	218	17.4	1.4	19	1.8	31	4	23.7	21.7	27	1.0																			
1000							31	1	27.5	23.7	22	41	31	7	25.2	23.1	10	2.4	31	218	17.4	1.4	19	1.8	31	4	23.7	21.7	27	1.0																			
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1000							31	1	27.5	23.7	22	41	31	7	25.2	23.1	10	2.4	31	218	17.4	1.4	19	1.8	31	4	23.7	21.7	27	1.0																			
1000							31	1	27.																																								

# RAWINSONDE DATA

Average monthly values

JULY 1978

CARLETON, AZ 991 MB												CENTREVILLE, AZ 1010 MB												CHARLESTON, SC 1016 MB												CHATHAM, MA 1014 MB												CHIHUAHUA, MEXICO 858 MB															
Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb															
No. of observations												No. of observations												No. of observations												No. of observations												No. of observations															
Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters															
Temperature °												Temperature °												Temperature °												Temperature °												Temperature °															
Dew Point °												Dew Point °												Dew Point °												Dew Point °												Dew Point °															
Direction true of deg												Direction true of deg												Direction true of deg												Direction true of deg												Direction true of deg															
Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind															
Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.															
SFC	31	191	14.9	12.7	24	1.2	140	21.7	20.8	39	2.4	31	15	23.4	21.1	29	2.6	31	16	17.7	15.5	27	1.1	27	1428	20.9	11.4	19	2.3	140	21.7	20.8	39	2.4	31	15	23.4	21.1	29	2.6	31	16	17.7	15.5	27	1.1	27	1428	20.9	11.4	19	2.3											
1000	24	110	7.8	6.5	16	4.5	30	299	19.0	10.7	26	2.2	31	21.4	25.7	19.9	11	3.7	31	16.11	16.4	8.0	24	1.7	31	1007	23.2	7.0	23	0.9	21	4.0	1000	24	110	7.8	6.5	16	4.5	30	299	19.0	10.7	26	2.2	31	21.4	25.7	19.9	11	3.7	31	16.11	16.4	8.0	24	1.7	31	1007	23.2	7.0	23	0.9
950	31	511	0.6	0.6	18	4.8	30	581	28.0	15.0	25	2.2	31	261	24.2	19.0	14	7.1	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	950	31	511	0.6	0.6	18	4.8	30	581	28.0	15.0	25	2.2	31	261	24.2	19.0	14	7.1	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
900	31	655	1.2	1.1	16	2.9	30	1067	17.6	16.4	27	4.7	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	900	31	655	1.2	1.1	16	2.9	30	1067	17.6	16.4	27	4.7	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
850	31	1421	3.0	1.4	14	2.4	30	1534	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	850	31	1421	3.0	1.4	14	2.4	30	1534	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
800	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	800	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
750	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	750	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
700	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	700	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
650	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	650	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
600	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	600	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
550	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	550	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
500	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	500	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
450	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	450	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
400	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	400	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
350	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	350	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
300	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	300	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
250	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	250	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
200	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	200	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
150	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	150	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
100	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	100	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
50	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	50	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9
0	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9	21	4.0	0	31	2912	2.1	1.4	14	2.4	30	2067	14.3	8.3	28	6.3	31	1033	21.7	16.0	16	9.4	31	20.30	19.0	6.1	29	2.4	31	1007	23.2	7.0	23	0.9

DUBOIS CITY, KS 975 MB												EL PASO, TX 882 MB												ELY, NV 811 MB												EMPALME, MEXICO 1008 MB												FAIRBANKS, AK 997 MB											
Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb											
No. of observations												No. of observations												No. of observations												No. of observations												No. of observations											
Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters											
Temperature °												Temperature °												Temperature °												Temperature °												Temperature °											
Dew Point °																																																											



# RAWINSONDE DATA

Average monthly values

JUNE 1978

FLINT, MI 988 MB										CLASBURN, MI 938 MB										GRAND JUNCTION, CO 893 MB										GREAT FALLS, MT 890 MB										GREEN BAY, WI 990 MB									
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind		Speed mps							
500	30	236	16.1	12.7	21	1.7	31	696	13.7	10.6	34	2	31	1472	19.2	3.2	12	3.2	31	1118	13.2	9.7	23	2.4	31	210	15.9	13.5	23	1.9	31	558	17.1	12.2	24	2.5	31	1419	15.1	10.5	26	3.7							
950	30	572	17.1	12.4	24	2.9	31	1011	17.0	8.6	29	2.8	31	1205	21.0	4.5	12	3.4	31	1505	15.4	5.2	25	3.6	31	14502	14.1	9.2	27	5.5	31	1419	15.1	10.5	26	3.7	31	14502	14.1	9.2	27	5.5							
900	30	1033	15.2	9.4	24	4.1	31	1499	15.5	5.2	29	3.6	31	1205	21.0	4.5	12	3.4	31	1505	15.4	5.2	25	3.6	31	14502	14.1	9.2	27	5.5	31	1419	15.1	10.5	26	3.7	31	14502	14.1	9.2	27	5.5							
850	30	1516	13.3	6.1	27	5.1	31	1499	15.5	5.2	29	3.6	31	1205	21.0	4.5	12	3.4	31	1505	15.4	5.2	25	3.6	31	14502	14.1	9.2	27	5.5	31	1419	15.1	10.5	26	3.7	31	14502	14.1	9.2	27	5.5							
800	30	2025	11.0	1.7	27	6.1	31	2544	11.2	2.7	29	6.1	31	2582	11.3	2.0	21	5.2	31	2555	8.7	-1.2	28	4.0	31	2547	8.4	-2.3	27	1.8	31	2547	8.4	-2.3	27	1.8	31	2547	8.4	-2.3	27	1.8							
750	30	2503	9.2	-3.4	24	7.9	31	2544	8.3	-0.2	29	6.1	31	2582	11.3	2.0	21	5.2	31	2555	8.7	-1.2	28	4.0	31	2547	8.4	-2.3	27	1.8	31	2547	8.4	-2.3	27	1.8	31	2547	8.4	-2.3	27	1.8							
700	30	3132	6.1	-5.6	24	9.1	31	3114	4.5	-4.6	28	8.4	31	3168	13.8	-3.4	25	4.2	31	3162	15.0	-4.0	27	5.7	31	3115	5.3	-5.1	28	9.5	31	3115	5.3	-5.1	28	9.5	31	3115	5.3	-5.1	28	9.5							
650	30	3736	3.2	-10.2	23	10.4	31	3714	1.8	-9.2	28	9.6	31	3788	8.8	-6.7	25	5.4	31	3723	1.2	-9.0	27	6.9	31	3717	2.0	-10.3	28	1.7	31	3717	2.0	-10.3	28	1.7	31	3717	2.0	-10.3	28	1.7							
600	30	4381	-1.5	-14.6	24	11.7	31	4351	-3.2	-13.8	28	11.1	31	4443	3.2	-9.6	24	6.7	31	4302	-3.0	-14.3	27	8.7	31	4330	-1.7	-14.6	28	10.7	31	4330	-1.7	-14.6	28	10.7	31	4330	-1.7	-14.6	28	10.7							
550	30	5071	-4.9	-18.8	24	11.9	31	5036	-7.5	-18.4	27	12.5	31	5141	-2.8	-13.3	24	7.4	31	5066	-7.4	-23.0	26	10.2	31	5066	-5.6	-20.8	28	12.2	31	5066	-5.6	-20.8	28	12.2	31	5066	-5.6	-20.8	28	12.2							
500	30	5816	-9.5	-24.4	24	12.0	31	5771	-12.1	-29.2	27	13.2	31	5898	-5.7	-20.4	24	8.4	31	5781	-12.2	-27.1	26	11.5	31	5781	-10.5	-25.5	28	13.4	31	5781	-10.5	-25.5	28	13.4	31	5781	-10.5	-25.5	28	13.4							
450	30	6620	-14.7	-29.3	23	13.8	31	6565	-17.0	-31.4	26	14.3	31	6696	-11.9	-24.2	25	13.7	31	6578	-17.3	-33.1	26	12.5	31	6578	-15.5	-28.8	28	14.7	31	6578	-15.5	-28.8	28	14.7	31	6578	-15.5	-28.8	28	14.7							
400	30	7502	-20.8	-35.8	28	14.9	31	7446	-23.9	-38.0	27	14.9	31	7581	-19.8	-34.2	26	12.4	31	7448	-24.6	-38.9	26	12.7	31	7448	-21.5	-34.8	28	16.8	31	7448	-21.5	-34.8	28	16.8	31	7448	-21.5	-34.8	28	16.8							
350	30	8478	-28.0	-42.0	26	17.1	31	8402	-31.5	-43.5	27	16.3	31	8542	-26.6	-40.5	25	15.1	31	8409	-31.7	-43.8	26	12.8	31	8442	-28.7	-40.7	28	18.5	31	8442	-28.7	-40.7	28	18.5	31	8442	-28.7	-40.7	28	18.5							
300	30	9264	-35.9	-48.2	24	18.8	31	9272	-39.8	-49.9	27	17.9	31	9393	-35.0	-47.1	25	17.3	31	9277	-40.3	-50.4	26	14.3	31	9258	-36.6	-47.1	28	21.8	31	9258	-36.6	-47.1	28	21.8	31	9258	-36.6	-47.1	28	21.8							
250	30	10002	-44.9	-52.9	28	25.5	31	10083	-48.9	-52.9	26	19.0	31	10072	-43.6	-52.9	25	21.2	31	10056	-48.9	-52.9	26	16.5	31	10075	-43.5	-52.9	28	23.7	31	10075	-43.5	-52.9	28	23.7	31	10075	-43.5	-52.9	28	23.7							
200	30	12200	-52.5	-58.5	28	26.3	31	12181	-51.0	-58.5	27	21.8	31	12372	-52.8	-58.5	25	23.6	31	12145	-52.4	-58.5	26	20.6	31	12227	-52.9	-58.5	28	27.5	31	12227	-52.9	-58.5	28	27.5	31	12227	-52.9	-58.5	28	27.5							
150	30	13122	-56.1	-61.5	25	25.5	31	13003	-55.5	-61.5	27	21.9	31	13223	-57.2	-61.5	25	18.1	31	13107	-57.4	-61.5	26	15.7	31	13082	-55.5	-61.5	28	24.8	31	13082	-55.5	-61.5	28	24.8	31	13082	-55.5	-61.5	28	24.8							
100	30	14095	-59.4	-61.5	29	19.1	31	13997	-58.1	-61.5	27	19.1	31	14187	-62.3	-61.5	25	15.2	31	13999	-58.4	-61.5	27	17.2	31	14059	-58.4	-61.5	28	20.7	31	14059	-58.4	-61.5	28	20.7	31	14059	-58.4	-61.5	28	20.7							
50	30	15234	-61.5	-61.5	29	15.1	31	15161	-59.0	-61.5	28	15.0	31	15301	-60.6	-61.5	26	11.0	31	15162	-58.4	-61.5	26	12.1	31	15200	-60.2	-61.5	28	20.8	31	15200	-60.2	-61.5	28	20.8	31	15200	-60.2	-61.5	28	20.8							
0	30	16815	-61.6	-61.5	31	9.8	31	16575	-57.1	-61.5	28	8.9	30	16548	-57.0	-61.5	25	4.8	31	16575	-57.4	-61.5	27	7.7	31	16590	-60.6	-61.5	28	10.9	31	16590	-60.6	-61.5	28	10.9	31	16590	-60.6	-61.5	28	10.9							
500	30	18001	-59.2	-61.5	31	3.0	30	17955	-55.0	-61.5	29	4.8	30	18058	-62.8	-61.5	27	1.8	31	17986	-57.1	-61.5	28	3.1	31	17998	-58.9	-61.5	29	5.1	31	17998	-58.9	-61.5	29	5.1	31	17998	-58.9	-61.5	29	5.1							
450	30	18839	-58.0	-61.5	31	1.7	30	18834	-55.4	-61.5	31	1.4	30	18933	-55.4	-61.5	29	2.9	31	18935	-55.6	-61.5	30	1.3	31	18935	-55.6	-61.5	31	7.0	31	18935	-55.6	-61.5	31	7.0	31	18935	-55.6	-61.5	31	7.0							
400	30	19816	-56.1	-61.5	30	3.0	30	19822	-53.9	-61.5	31	1.9	30	19798	-58.5	-61.5	29	5.2	31	19817	-58.4	-61.5	29	5.2	31	19805	-55.7	-61.5	31	1.8	31	19805	-55.7	-61.5	31	1.8	31	19805	-55.7	-61.5	31	1.8							
350	30	20981	-54.2	-61.5	30	5.2	30	20997	-52.5	-61.5	30	4.8	30	20952	-54.1	-61.5	29	6.7	30	20987	-52.9	-61.5	29	7.8	30	20972	-52.8	-61.5	30	3.6	30	20972	-52.8	-61.5	30	3.6	30	20972	-52.8	-61.5	30	3.6							
300	30	22240	-51.9	-61.5	30	7.3	30	22245	-51.0	-61.5	30	6.4	30	22380	-50.1	-61.5	29	8.2	30	22343	-51.1	-61.5	29	5.1	31	22412	-51.8	-61.5	30	5.6	30	22412	-51.8	-61.5	30	5.6	30	22412	-51.8	-61.5	30	5.6							
250	30	24229	-49.0	-61.5	30	9.7	30	24325	-49.1	-61.5	30	7.8	30	24439	-50.7	-61.5	29	10.5	30	24314	-48.4	-61.5	29	7.7	30	24289	-47.0	-61.5	30	7.7	30	24289	-47.0	-61.5	30	7.7	30	24289	-47.0	-61.5	30	7.7							
200	30	25492	-47.3	-61.5	30	12.9	30	25524	-46.9	-61.5	30	9.4	30	25647	-49.9	-61.5	29	12.1	30	25515	-48.7	-61.5	29	8.1	31	25580	-47.0	-61.5	30	10.6	30	25580	-47.0	-61.5	30	10.6	30	25580	-47.0	-61.5	30	10.6							
150	30	26972	-45.0	-61.5	30	12.8	30	27015	-44.4	-61.5	30	10.4	30	26954	-46.7	-61.5	29	12.7	30	27005	-44.2	-61.5	29	10.3	30	26977	-44.6	-61.5	30	10.6	30	26977	-44.6	-61.5	30	10.6	30	26977	-44.6	-61.5	30	10.6							
100	30	28902	-41.8	-61.5	30	14.6	30	28953	-41.6	-61.5	30	10.4	30	28835	-43.5	-61.5	29	14.3	30	28943	-41.7	-61.5	29	12.9	30	28914	-42.2	-61.5	30	12.3	30	28914	-42.2	-61.5	30	12.3	30	28914	-42.2	-61.5	30	12.3							
50	30	31691	-37.0	-61.5	30	25	31734	-37.1	-61.5	30	14.9	30	31587	-36.1	-61.5	29	14.9	30	31725	-36.1	-61.5	29	15.3	30	31678	-38.1	-61.5	30	15.9	30	31678	-38.1	-61.5	30	15.9	30	31678	-38.1	-61.5	30	15.9								



# RAWINSONDE DATA

Average monthly values

JULY 1978

KEY WEST, FL 1017 MB										KNOX, CANINE IS. 1005 MB										KOTTERF, AK 1011 MB										LAKE CHARLES, LA 1015 MB									
Standard pressure surface	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s															
500	31	27.4	24.1	15.1	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
1000	31	132	24.2	15.1	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
900	31	147.3	24.2	15.1	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
800	31	159.5	17.5	11.1	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
700	31	200.2	14.9	6.5	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
600	31	240.6	11.1	2.1	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
500	31	280.6	8.1	-1.0	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
400	31	310.6	4.1	-6.5	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
300	31	340.6	0.1	-13.0	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
200	31	370.6	-4.1	-19.5	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
100	31	400.6	-8.1	-26.0	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
0	31	430.6	-12.1	-32.5	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
500	31	510.6	-16.1	-39.0	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
400	31	540.6	-19.1	-45.5	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
300	31	570.6	-23.1	-52.0	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
200	31	600.6	-27.1	-58.5	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
100	31	630.6	-31.1	-65.0	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																
0	31	660.6	-35.1	-71.5	1.1	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19																

LANDER, NY 832 MB										LITTLE ROCK, AR 995 MB										LONGVIEW, TX 1001 MB										MCGRATH, AK 1001 MB									
500	31	1697	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
1000	31	1802	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
900	31	1907	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
800	31	2002	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
700	31	2097	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
600	31	2192	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
500	31	2287	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
400	31	2382	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
300	31	2477	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
200	31	2572	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
100	31	2667	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			
0	31	2762	14.2	5.1	24	1.7	31	39	24.6	21.0	06	0.0	31	79	23.6	21.0	19	9	31	124	23.7	21.6	20	2.1	31	103	11.9	8.2	20	1.4	31	103	11.9	8.2	20	1.4			

MAJURO, MARSHALL IS. 1010 MB										MEAFORD, OR 989 MB										MERCIA, MEXICO 1013 MB										MIDLAND, TX 916 MB										MONTERREY, MEXICO 962 MB									
Standard pressure surface	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m.p.s													
500	31	28.5	24.3	10.1	3.0	31	31	28.5	24.3	10.1	3.0	31	31	28.5	24.3	10.1	3.0	31	31	28.5	24.3	10.1	3.0	31	31	28.5	24.3	10.1	3.0	31	31	28.5	24.3	10.1	3.0	31	31	28.5	24.3	10.1	3.0								
1000	31	91	27.1	23.1	0.9	3.5	31	91	27.1	23.1	0.9	3.5	31	91	27.1	23.1	0.9	3.5	31	91	27.1	23.1	0.9	3.5	31	91	27.1	23.1	0.9	3.5	31	91	27.1	23.1	0.9	3.5	31	91	27.1	23.1	0.9	3.5							
900	31	104	26.0	21.0	0.1	3.1	31	104	26.0	21.0	0.1	3.1	31	104	26.0	21.0	0.1	3.1	31	104	26.0	21.0	0.1	3.1	31	104	26.0	21.0	0.1	3.1	31	104	26.0	21.0	0.1	3.1	31	104	26.0	21.0	0.1	3.1							
800	31	104	25.0	20.0	18.1	1.0	6.1	31	103.4	20.0	18.1	1.0	6.1	31	103.4	20.0	18.1	1.0	6.1	31	103.4	20.0	18.1	1.0	6.1	31	103.4	20.0	18.1	1.0	6.1	31	103.4	20.0	18.1	1.0	6.1	31	103.4	20.0	18.1	1.0	6.1						
700	31	104	24.0	19.0	14.2	0.2	0.4	1.0	31	104.1	18.0	13.0	9.7	11	7.9	31	104.1	18.0	13.0	9.7	11	7.9	31	104.1	18.0	13.0	9.7	11	7.9	31	104.1	18.0	13.0	9.7	11	7.9	31	104.1	18.0	13.0	9.7	11	7.9						
600	31	20.2	19.5	11.1	1.0	4.5	31	20.3	12.0	1.7	0.9	9.3	21	20.5	15.0	4.6	11	7.0	31	20.5	19.2	8.2	1.6	5.1	31	20.5	19.2	8.2	1.6	5.1	31	20.5	19.2	8.2	1.6	5.1	31	20.5	19.2	8.2	1.6	5.1							
500	31	23.7	12.7	7.7	1.0	3.1	31	23.6	9.0	3.0	0.2	1.4	31	23.6	12.4	4.9	1.2	7.1	31	23.6	15.2	5.1	1.3	4.7	31	23.6	15.2	5.1	1.3	4.7	31	23.6	15.2	5.1	1.3	4.7	31	23.6	15.2	5.1	1.3	4.7							
400	31	31.3	13.0	8.1	1.0	3.1	31	31.3	9.0	3.0	0.2	1.4	31	31.3	12.4	4.9	1.2	7.1	31	31.3	15.2	5.1	1.3	4.7	31	31.3	15.2	5.1	1.3	4.7	31	31.3	15.2	5.1	1.3	4.7	31	31.3	15.2	5.1	1.3	4.7							
300	31	37.6	16.0	9.1	1.0	3.1	31	37.6	11.0	3.1	1.0	1.4	31	37.6	12.4	4.9	1.2	7.1	31	37.6	15.2	5.1	1.3	4.7	31	37.6	15.2	5.1	1.3	4.7	31	37.6	15.2	5.1	1.3	4.7	31	37.6	15.2	5.1	1.3	4.7							
200	31	41.9	18.0	10.1	1.0	3.1	31	41.9	11.0	3.1	1.0	1.4	31	41.9	12.4	4.9	1.2	7.1	31	41.9	15.2	5.1	1.3	4.7	31	41.9	15.2	5.1	1.3	4.7	31	41.9	15.2	5.1	1.3	4.7	31	41.9	15.2	5.1	1.3	4.7							
100	31	51.2	19.0	10.1	1.0	3.1	31	51.2	11.0	3.1	1.0	1.4	31	51.2	12.4	4.9	1.2	7.1	31	51.2	15.2	5.1	1.3	4.7	31	51.2	15.2	5.1	1.3	4.7	31	51.2	15.2	5.1	1.3	4.7	31	51.2	15.2	5.1	1.3	4.7							
500	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
400	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
300	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
200	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
100	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
500	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
400	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
300	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
200	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
100	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
500	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
400	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
300	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
200	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
100	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
500	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
400	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
300	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
200	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
100	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
500	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
400	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31	50.7	12.4	4.9	1.2	7.1	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7	31	50.7	15.2	5.1	1.3	4.7							
300	31	50.7	15.0	11.1	1.0	3.1	31	50.7	11.0	3.1	1.0	1.4	31																																				



# RAWINSONDE DATA

Average monthly values

HONOLULU, HI 965 MB										NASHVILLE, TN 990 MB										NOME, AK 1011 MB										PORTLAND, ME 1013 MB									
Standard pressure surface in hPa										Standard pressure surface in hPa										Standard pressure surface in hPa										Standard pressure surface in hPa									
No. of observations										No. of observations										No. of observations										No. of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction of wind										Direction of wind										Direction of wind										Direction of wind									
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## Average monthly value

[illegible]



## Average monthly values

U. S. A.

[illegible]

# SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

JULY 1978

Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
BLUE HILL OBSERVATORY, MA										MADISON, WI									
Air mass										Air mass									
1.88	.92	2.94	1.96	*	1.96	2.94	3.92	4.89		4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69	
NO DATA RECEIVED										8----	S .52	S .59	S .69	S .80	----	----	----	----	----
										10----	S .56	S .63	S .70	S .84	----	----	----	----	----
										11----	S .52	S .60	S .70	S .81	----	----	----	----	----
										12----	----	----	----	----	S .80	S .69	S .61	S .53	----
										14----	M .48	M .55	M .64	----	----	----	----	----	----
										15----	M .49	M .55	M .66	S .76	S .85	----	S .61	S .51	S .43
										23----	----	S .63	S .70	----	----	----	----	----	----
										24----	----	----	----	----	S .70	----	----	----	S .41
										27----	----	----	S .68	S .80	----	----	----	----	----
										28----	----	----	----	S .78	----	----	----	----	----
Averages											.51	.59	.68	.79	.85	.75	.65	.56	.46
MAUNA LOA OBSERVATORY, HI										TUCSON, AZ									
Air mass										Air mass									
3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64	
2----	1.11	1.26	1.28	1.39	1.54	----	----	----	----	NO DATA RECEIVED									
4----	1.13	1.20	1.29	1.40	----	----	----	----	----										
6----	----	----	----	----	----	1.37	1.27	1.19	1.10										
8----	1.08	1.15	1.25	1.36	----	----	----	----	----										
9----	1.08	1.16	1.25	1.36	1.54	1.40	1.32	1.24	1.16										
10----	1.15	1.21	1.31	1.41	1.73	1.39	1.28	1.18	1.10										
11----	1.12	1.19	1.29	1.40	1.56	1.39	1.28	1.18	1.10										
12----	1.12	1.19	1.29	1.40	1.57	1.39	1.29	1.20	1.14										
13----	1.14	1.29	----	----	----	----	----	----	----										
16----	1.17	1.24	1.32	----	1.53	1.37	1.26	1.17	1.09										
17----	1.20	1.28	1.35	1.45	1.54	1.40	1.29	1.21	1.14										
18----	1.22	1.28	1.36	1.45	----	----	----	----	----										
19----	1.16	1.23	1.31	----	----	----	----	----	----										
21----	1.18	1.25	----	----	----	----	----	----	----										
22----	1.15	1.23	1.32	1.42	----	----	----	----	----										
24----	1.19	1.27	1.33	1.45	----	----	----	----	----										
26----	1.14	1.22	1.31	1.41	----	----	----	----	----										
28----	1.17	1.24	1.31	1.40	----	----	----	----	----										
Averages	1.13	1.23	1.31	1.41	1.54	1.39	1.29	1.20	1.12										

## NET RADIATION

Net radiation in langleys per day (6 a.m. to 8 p.m.) at Palmer, Alaska.

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys . . .	84	219	244	90	132	97	101	221	269	157	191	88	211	128	121	67	86	274	179	92	55	31	76	236	163	84	119	175	123	221	228	147

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- o Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- # No Storm Data Report received for this State.
- < Report Incomplete.
- + Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*)	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	GF	Ground Fog	K	Smoke	N	Sand
D	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

**NET RADIATION:** The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), July



B. Temperature Departure from 30 - Year Mean (°F 1941-70), July 1978

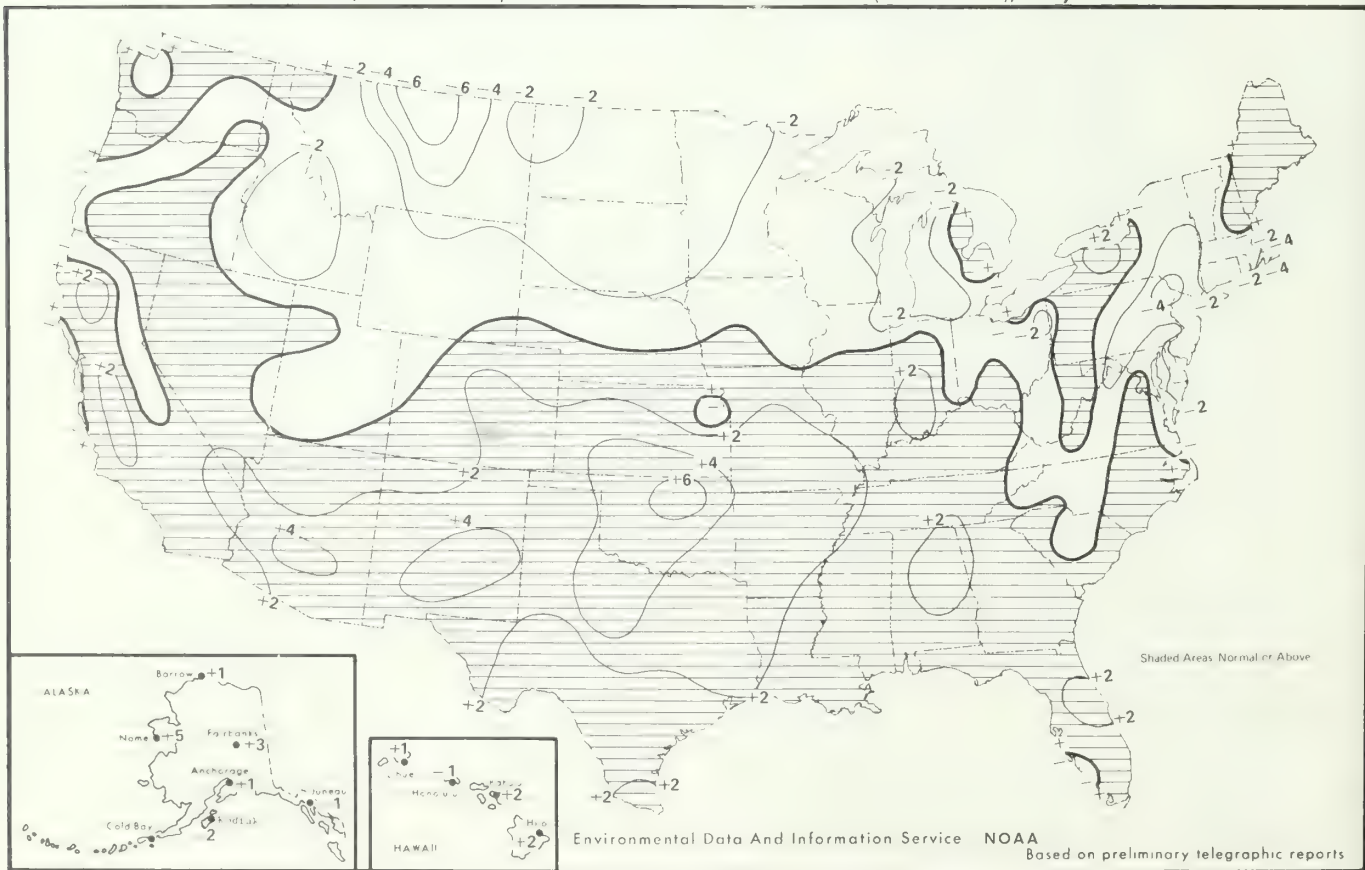
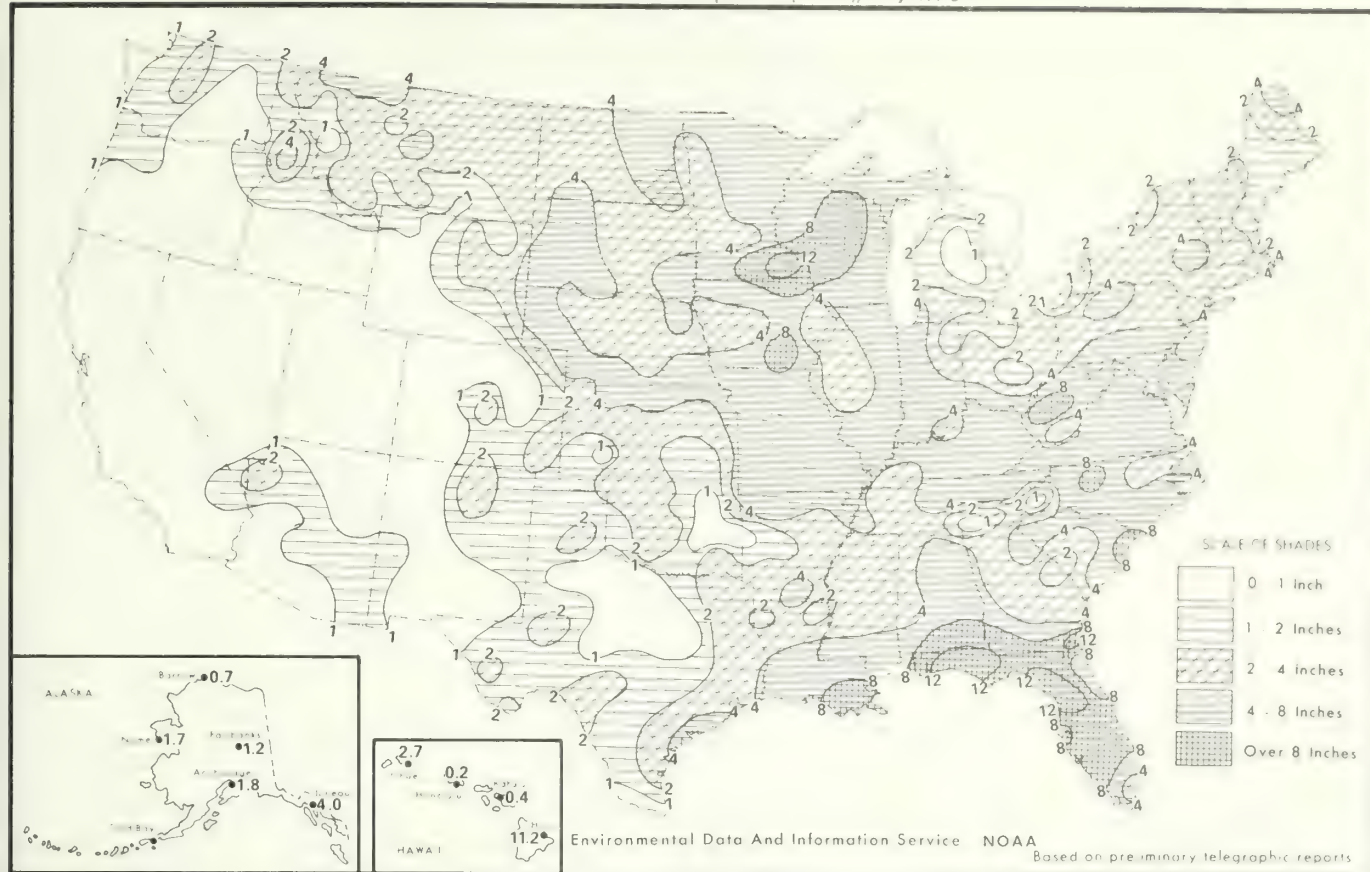


Chart II. A. Total Precipitation (Inches), July 1978



B. Percentage of Normal Precipitation, July 1978

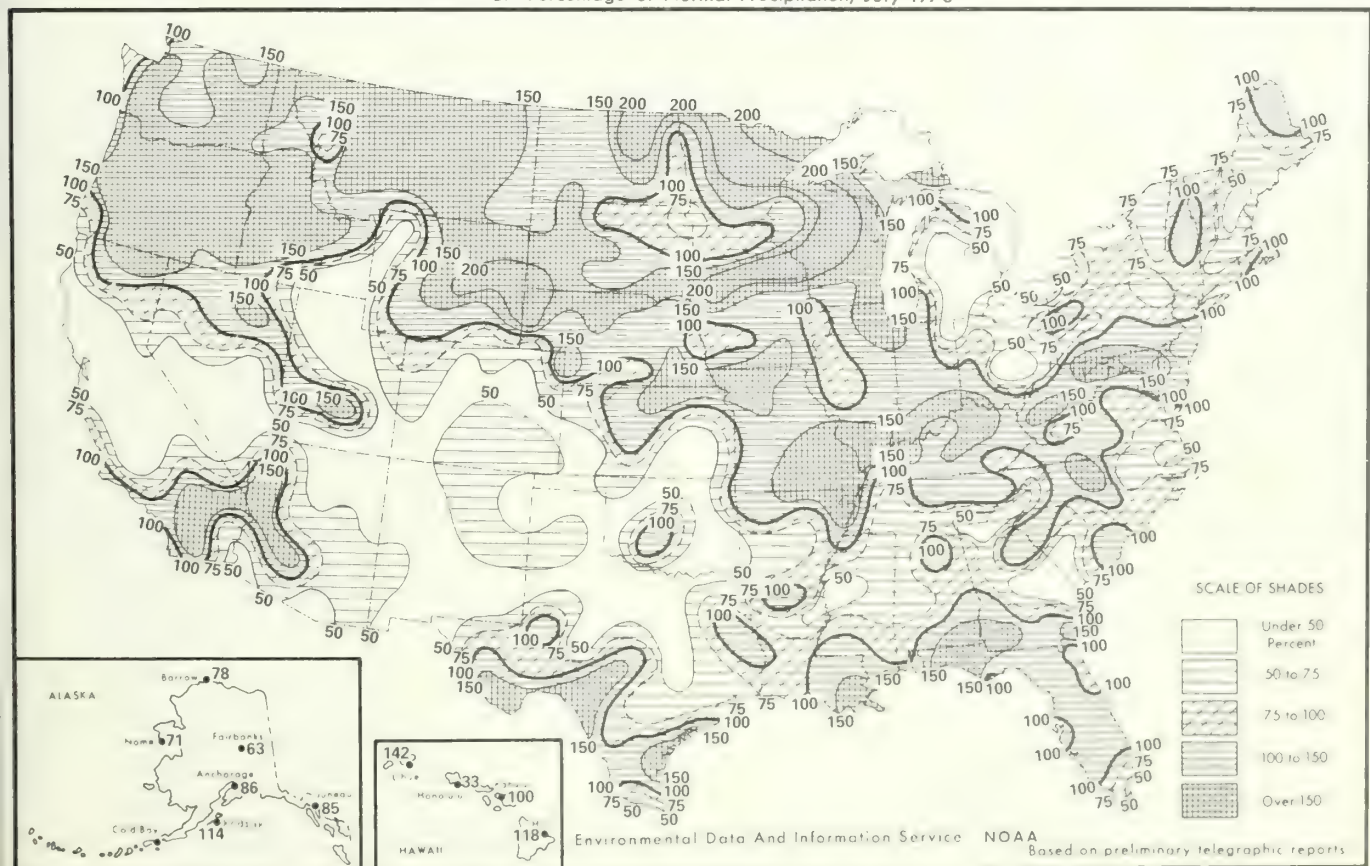
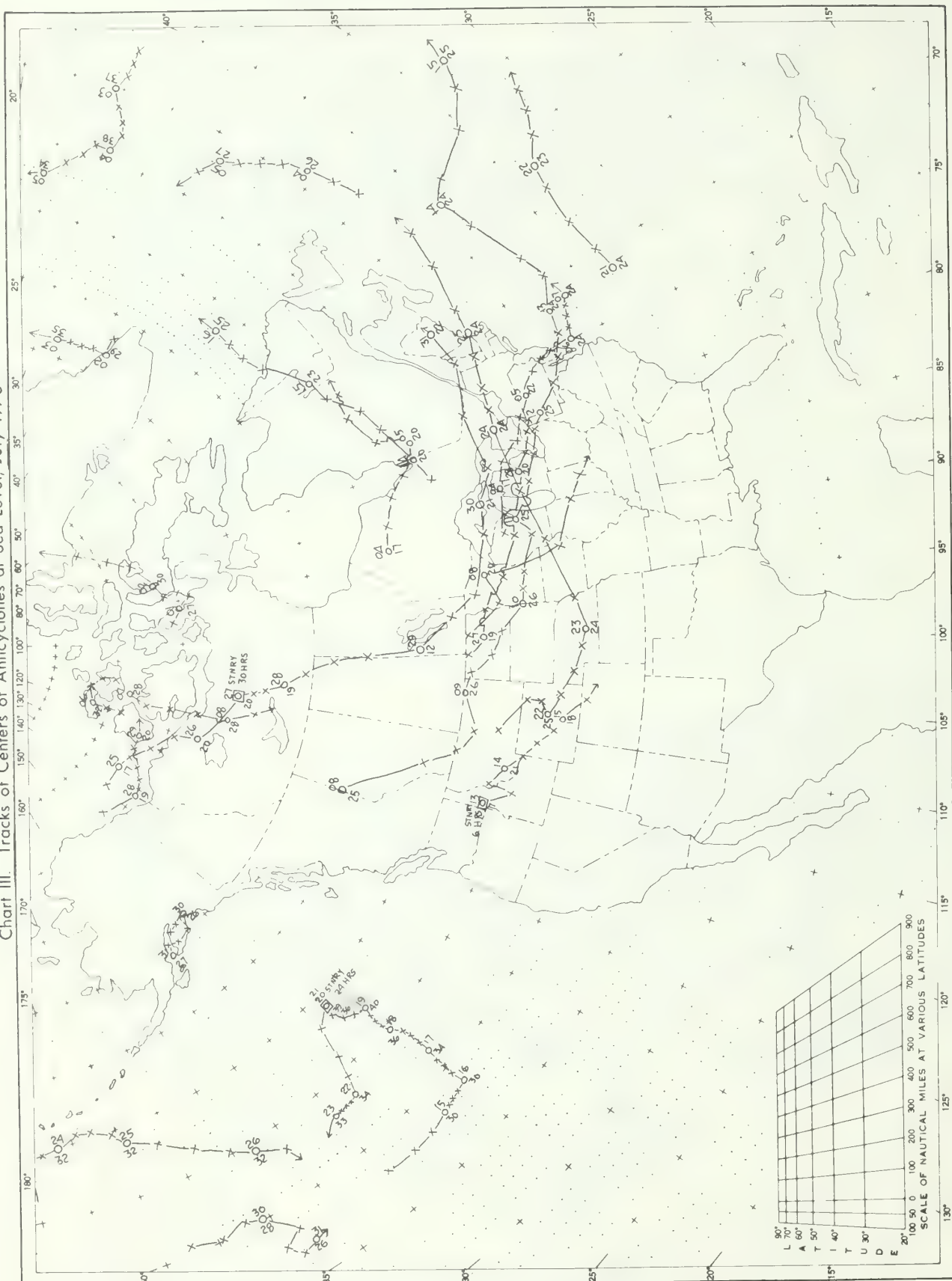




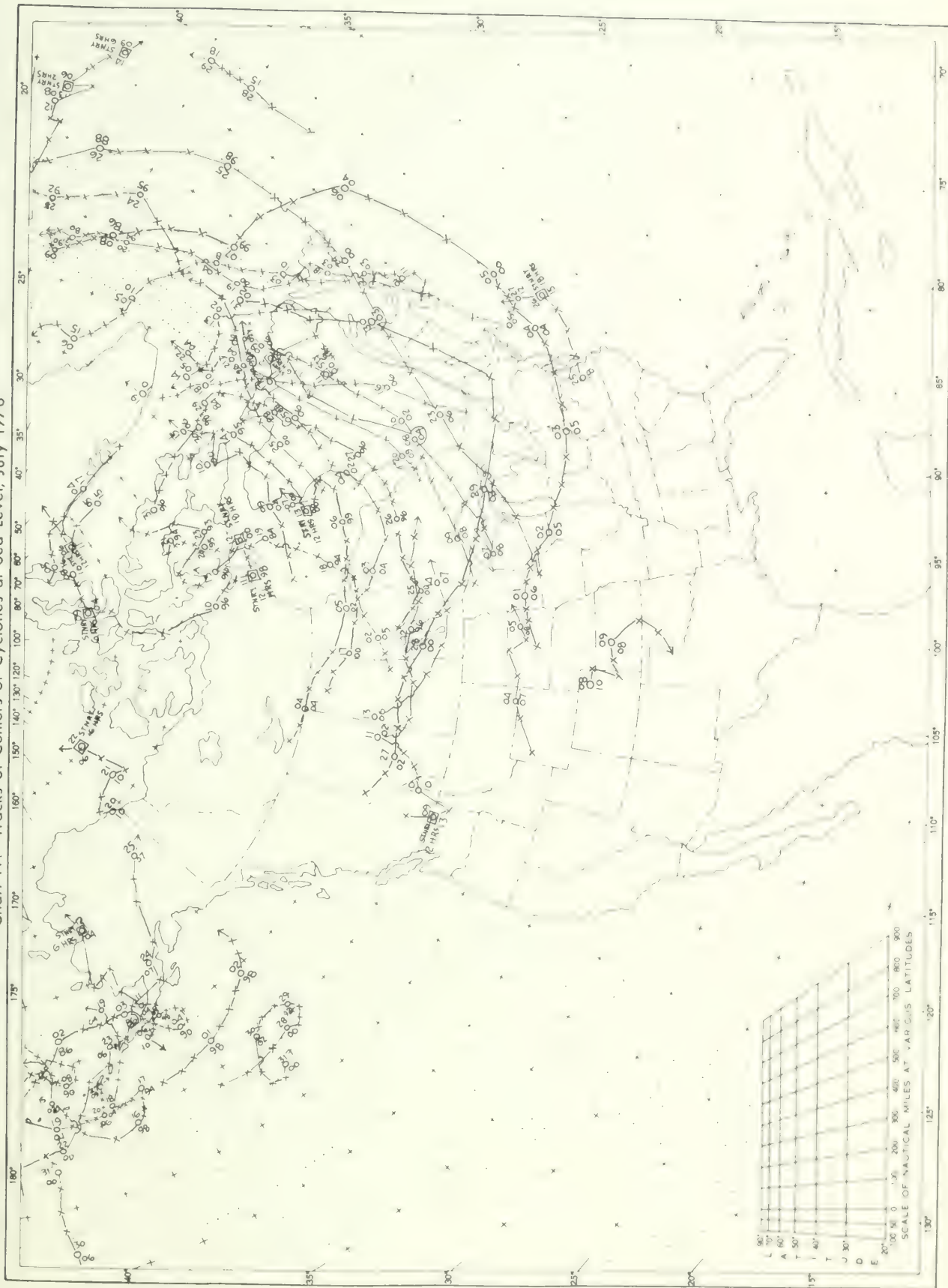
Chart III. Tracks of Centers of Anticyclones at Sea Level, July 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformatting at new position. Only those centers which could be identified for 24 hours or more are included.



Chart IV. Tracks of Centers of Cyclones at Sea Level, July 1978



Circle indicates position of center at 700 a.m. E.S.T. Figure above circle indicates date, figure below pressure to nearest millibar  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included







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AUGUST 1978

VOLUME 29

NUMBER 8

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRA-  
TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH  
CAROLINA 28801."

*Samuel B. Mitchell*  
TECH. DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

AUGUST 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** The heaviest precipitation for the month occurred early when Tropical Storm Amelia spread heavy rain from south central to north central Texas. At the end of the month, Tropical Storm Debra dropped heavy rain from southern Louisiana to southern Illinois. Cool air moved into the West from Canada causing most of the area west of the Rockies to be cooler than normal while warm air from the Gulf of Mexico set heat records from the Plains eastward.

As August began, the season's first tropical storm barged onto the south central Texas coast. Tropical Storm Amelia rapidly decreased in wind velocity but spread large amounts of rain from Corpus Christi to San Antonio and northward to southwestern Oklahoma. Some areas were flooded by more than 10 inches during the week. Elsewhere, cool air swept into the north central States and moved eastward. As the moisture-laden air from the South encountered the cool air, severe weather and heavy rains occurred from Tennessee to the Appalachians and northward to southern New England.

An outstanding feature of early August was the unusually warm weather that settled over the Far West. In the second week, temperatures averaged 9 to 12 degrees warmer than normal. Red Bluff, CA, watched the mercury climb to 119° on two days, the 7th and 8th, while southern Washington and northern Idaho reached 105°. At the end of the period, a weak cool front broke the pattern. Also during the second week of August, most of the heaviest rain was confined to areas east of the Mississippi River. In the Southeast, many points accumulated two inches or more of rain. Unfortunately, the rain in Georgia, where soils were dry, was spotty and many areas had little or no relief.

The week of mid-August (14th-20th) brought several masses of cool, Canadian air into the northwestern

United States and autumnlike temperatures prevailed in the Plateau and the Rockies. The sizzling heat of early August dropped to near-normal readings on the West Coast. Warmer-than-normal weather blanketed the eastern United States. Little or no rain fell in California and Nevada, but all of the other States had varying amounts of rain. Severe weather dominated the northern Plains, and Michigan got some much-needed rain although several of the inundating downpours were not welcome. Intense storms also hit the Gulf Coast and Florida.

The week of the 21st-27th was cool in the West and New England and hot in the Plains and East. Temperatures in the central Plains averaged 9 to 10 degrees warmer than normal. Some daily readings scored over 100° in the central Plains while Alamosa, CO, equaled a record low reading of 36° and a one day high reading in Burlington, VT, reached only 62°. Severe weather again plagued the upper Mississippi Valley as the very warm, moist air from the South was lifted by the cooler air from the West. Heavy downpours drenched Minnesota, Wisconsin, and Iowa. Local flooding hit these areas. Isolated showers and thunderstorms were reported in most other areas east of the Rockies. An exception was the four State area of northern Louisiana, southern Arkansas, northeastern Texas, and southeastern Oklahoma where rain has been scarce most of the summer. An easterly wave dumped heavy rain on the southern tip of Louisiana at the end of the week.

August went out as it had come in. An easterly wave in the Gulf of Mexico became Tropical Storm Debra which curved northward and entered the coast between Port Arthur, TX, and Lake Charles, LA. Torrential rain fell in a narrow area around the Storm as it sped northward. A tornado, spawned by Debra, caused property damage and some injuries in Memphis.

# TROPICAL STORM BESS

August 5 - 8, 1978

National Hurricane Center, NOAA  
Miami, Florida

Bess was not of tropical origin, but developed from a weak low pressure system which formed on a dissipating cold front over northeastern Georgia on August 1. The weak low and associated convection drifted to southeast Georgia on the 2d and then turned southwestward into the extreme northeast Gulf of Mexico on the 3d. Satellite, buoy, and aerial reconnaissance data suggest that a closed circulation probably existed by 1200 GMT on the 5th. Satellite pictures on the morning of the 6th revealed a well-defined depression, and an Air Force reconnaissance plane confirmed that tropical storm strength had been reached late that afternoon about 250 miles southeast of Brownsville, TX.

The storm had been moving towards the west southwest at 8 knots for three days, but turned to the southwest late on the 6th and eventually turned due south at about the same speed during the next 36 hours. It made landfall near Nautla, Mexico, during the early morning hours of the 8th. Such a change in direction was suggested by the presence of a 500 mb high over southern Texas which was forecast to persist for 36 hours on the NMC numerical prognoses. However, the extent of the southward turn was not well-recognized in the official forecasts.

When Bess initially developed, conditions appeared favorable for strengthening to a minimal hurricane before landfall. However southward moving storms seldom intensify and the maximum sustained surface winds reached only 45 knots on the 7th while the minimum sea level pressure of 1005 millibars also occurred that day. A wind of 60 knots reported by the reconnaissance aircraft during the afternoon of the 7th was not considered to be indicative of the storm's intensity.

No coastal reports were received near the storm as it made landfall. The highest observed coastal winds of 25 knots at Tampico and Tuxpan occurred during the day on the 7th as the center approached the coast. Satellite pictures indicate rainfall associated with the storm decreased rapidly after landfall.

No deaths or significant damage have been attributed to Bess.

It was fortunate that Bess turned to the southwest, as the threat of additional heavy rains in Texas after those of Amelia caused considerable anxiety among residents and post-disaster officials still cleaning up from Amelia's disastrous floods.

## Preliminary Report

DATE	TIME (GMT)	LATITUDE (NORTH)	LONGITUDE (WEST)	PRESSURE (MB)	WIND (KT)	STAGE
8/5	1200	25.3	90.4	1012	20	Tropical Depression
	1800	25.1	91.0	1012	20	
8/6	0000	24.8	91.8	1011	25	Tropical Storm
	0600	24.5	92.5	1010	30	
	1200	24.2	93.3	1009	30	
	1800	23.9	94.0	1008	35	
8/7	0000	23.3	95.0	1007	40	
	0600	22.8	95.7	1006	40	
	1200	22.2	96.2	1005	40	
	1800	21.6	96.6	1006	45	
8/8	0000	21.1	96.8	1007	45	Tropical Depression
	0600	20.4	96.9	1008	40	
	1200	20.0	97.0	1010	25	

# HURRICANE CORA

August 7 - 12, 1978

National Hurricane Center, NOAA  
Miami, Florida

A disturbance first observed off the northwest African coast on August 4 moved westward 15 to 20 knots along the ITCZ until the 6th. On that day a circular cloud mass shifted north of the ITCZ and by the 7th it rapidly organized into the third tropical depression of the hurricane season.

The small but well-organized tropical depression was designated Tropical Storm Cora the morning of the 8th and upgraded to a hurricane during the afternoon as satellite pictures indicated the formation of a sharply defined eye. At this time Cora began moving on a course slightly south of due west with a forward speed of at least 20 knots. The storm maintained this motion through the remainder of its track.

On the 9th, while still east of the Lesser Antilles, the circulation of Cora became disorganized and the eye was no longer evident. The first Air Force reconnaissance flight into Cora, which took place that afternoon, reported the lowest surface pressure was only 1001 mbs and maximum winds were 55 knots. This weakening trend continued on the 10th and reconnaissance reported the lowest pressure had risen to 1008 mbs, although squalls with sustained winds of 55 knots were observed again. As the storm moved into the Windward Islands on the afternoon of the 10th, squalls in excess of 40 knots were reported on the islands of St. Lucia and Barbados. Rainfall amounts were not large because the storm was small and moving rapidly. On the 11th Cora lost all evidence of circulation and was downgraded to a tropical wave. There was very little convection or cloudiness associated with this tropical wave as it moved into the southwestern Caribbean Sea on the 12th.

Hurricane Cora was an unusual storm in several ways: the rapid formation and equally rapid dissipation, the unusual course and rapid forward speed, and the fact that Cora was only the third storm ever upgraded to a hurricane in the Atlantic based solely on satellite pictures.

The most spectacular occurrence was the development of a well defined eye in a very short period followed by a rapid loss of the eye in less than 12 hours. It is difficult to ascertain why Cora was unable to maintain the tight circulation she developed.

The rapid forward speed on a course slightly south of due west was very unusual for August in that section of the Atlantic. It is not known whether this motion was produced by the weakening of the storm, or if it was partially responsible for the rapid loss in strength.

Cora was upgraded first to a tropical storm and then to a hurricane solely on the basis of satellite pictures. Hurricane Doris and Gladys in 1975 were the only other tropical storms upgraded to hurricanes based on satellite pictures alone. The satellite classification system indicated the lowest pressure was about 980 mbs and maximum winds were 75 and 80 knots when the eye was most evident.

The rapid dissipation of Cora's circulation as the center moved into the southeast Caribbean Sea was not expected as this frequently occurs there when storms are not well organized. The entrainment of continental air from South America limits convection and the strong low level easterlies produced by the South American heat low disrupts the circulation. There were indications that upper level divergence and low level convergence increased as Cora moved into the Caribbean. These criteria are favorable for development, yet the circulation completely disappeared in 24 hours, which indicates the magnitude of the continental influence.

NHC computerized forecasts and the official forecasts tended to be a little slow and to the north of the actual track, probably due to the unusual motion of Cora. Once the eye developed, forecasts of continued strengthening were made until it was obvious the storm was on a sustained weakening trend.

There were no reports of damage in the Windward Islands and evidently no ships passed near the storm's center.



# HURRICANE CORA

## Preliminary Report

<u>DATE</u>	<u>TIME</u> (GMT)	<u>LATITUDE</u> (NORTH)	<u>LONGITUDE</u> (WEST)	<u>PRESSURE</u> (MB)	<u>WIND</u> (KT)	<u>STAGE</u>
8/7	1200	13.0	35.0	1010	25	Tropical Depression
	1800	13.4	36.2	1010	25	
8/8	0000	13.8	37.8	1009	25	Tropical Storm Hurricane
	0600	13.9	39.6	1008	30	
	1200	14.0	41.5	1003	50	
	1800	14.0	43.2	990	65	
8/9	0000	14.0	44.9	980	80	
	0600	13.9	46.8	980	80	
	1200	13.6	48.6	988	70	
	1800	13.2	50.6	998	65	
8/10	0000	12.8	52.8	1006	60	Tropical Storm
	0600	12.4	54.8	1007	55	
	1200	12.2	56.8	1007	55	
	1800	12.1	58.8	1008	50	
8/11	0000	12.0	60.9	1008	45	Tropical Depression
	0600	12.0	62.8	1008	35	
	1200	12.1	64.8	1008	30	
	1800	12.1	66.8	1009	30	
8/12	0000	12.2	68.8	1010	30	Tropical Wave

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

STATE	Temperature					Precipitation				
	Monthly extremes					Monthly extremes				
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Lowest In.
Alabama	Fayette	101	4	7 Stations	59	28	Dauphin Island 2	12.04	1	1.22
Alaska	Barrow	95	1	Chandalar Lake	14	24	Little Port Walter	6.11	4 Stations	1.00
Arizona	Willow Beach	117	8	2 Stations	29	28	Alpine	10.80	1	47
Arkansas	2 Stations	106	24	Calico Rock	49	23	Lake City	3.62	1	
California	Death Valley	124	9	Red Bluff	13	18	Crescent City 7 ENE			
Colorado	2 Stations	106	18	2 Stations	18	29	Akron FAA AP	7.01	Norwood	1.55
Connecticut	Norwalk Gas Plant	92	18	Falls Village	44	22	Georgetown 5 SW	8.63	1	1.02
Delaware	2 Stations	94	29	3 Stations	51	24	Starke	18.16	1	
Florida	Fernandina Beach	99	27	3 Stations	61	29				
Georgia	Hawkinsville	102	21	Appling 2 NW	63	24				
Hawaii	2 Stations	93	21	Mauna Loa Slope Obs	11	2	Kahana 883	39.36	1	
Idaho	4 Stations	106	9	Fairfield 3 SE	22	24	Bayview Model Basin	4.12	Howe	02
Illinois	Du Quin 4 SE	106	25	Mount Carroll	40	1	Cairo WSO CI	11.62	1	
Indiana	2 Stations	101	26	Angola	41	31	Shelbyville Sewage Plant	11.68	1	
Iowa	3 Stations	98	15	2 Stations	38	1	Mount Pleasant	7.02	Bellvue Lock & Dam 12	
Kansas	2 Stations	109	18	Hill City FAA AP	40	1	McCune 6 SW	8.74	2 Stations	
Kentucky	Gilbertsville KY Dam	103	2	2 Stations	30	21	Liberty	10.87	1	
Louisiana	Logansport 4 ENE	105	18	Logansport 4 ENE	61	30	LSU Ben-Hur Exp Station	15.12	1	
Maine	Saco	97	17	Squa Pan Dam	27	25	Rangeley	3.54	Orono	49
Maryland	2 Stations	96	29	Oakland 1 SE	45	22	Rockville 4 SE	9.38	Emmitsburg 2 SE	1.88
Massachusetts	Chester 2	93	16	Ames	37	23	Segreganset	11.19	Rockport 1 ESE	
Michigan	Atlanta	95	15	Vanderburgh 11 ENE	30	31	Romer 2	10.99	Almont	92
Minnesota	2 Stations	99	14	Tower 3 S	28	31	Wadena 1	13.30	Bluff Lake	38
Mississippi	4 Stations	101	27	Iuka	55	22	Wadena 1	8.77	Saint Charles	
Missouri	3 Stations	104	29	2 Stations	45	20				
Montana	Powderville 8 NNE	102	12	Elk Park	20	1	Sweetgrass	5.81	2 Stations	60
Nebraska	Beaver City	107	24	Agate 3 E	31	19	Naponee	7.48	Oshkosh	
Nevada	Sunrise Manr Las Vegas	117	8	Moontown City Ranger Sta	17	25	Wendover 1	4.11	North Conway	1.79
New Hampshire	2 Stations	93	17	2 Stations	31	28	Surry Mountain Lake	12.08	Audubon	1.73
New Jersey	Moorestown	98	17	4 Stations	49	24				
New Mexico	Jal	108	17	Eagle Nest	26	27	Cloud Country Club	5.65	Cayuga Lock 1	1.00
New York	New York Laurel Hill	97	19	2 Stations	37	27	Greenport Power House	16.57	Lake Toxaway 2 SW	6.18
North Carolina	Manteo 2 WNW	100	17	Transou	41	22	Lake Toxaway 2 SW	6.18	Alexandria 4 WSW	11.89
North Dakota	4 Stations	105	13	Tioga 1 E	29	3	Pembina 3 N	5.65	Goodwell Research Station	2.07
Ohio	2 Stations	96	25	Plymouth 2 WSW	37	21	Alexandria 4 WSW	13.27	Coloso	2.84
Oklahoma	Buffalo	111	17	Kingfisher 2 SE	49	31	Goodfield	6.60	Providence WSO AP	1.72
Oregon	2 Stations	110	8	Fremont	23	14	Blackfoot	10.90	Longcreek	7.36
Pennsylvania	4 Stations	95	25	Austinsburg 2 W	36	21	Blacksville Dam	13.27	Bethpage	31.19
Puerto Rico	Guayama	99	2	2 Stations	58	31	Coloso	6.46	Fort Duchesne	3.55
Rhode Island	Providence WSO AP	89	17	Kingston	50	23				
South Carolina	3 Stations	100	26	Union 8 SW	54	25	Longcreek	10.64	Albany	1.09
South Dakota	2 Stations	108	12	Deerfield 4 NW	25	21	Alexandria	7.36	Lorenzo	00
Tennessee	2 Stations	101	26	2 Stations	50	22	Bethpage	9.82		
Texas	Lamesa 1 SSE	111	19	Littlefield 2 NW	50	31	Albany	31.19		
Utah	Saint George	111	9	2 Stations	23	19	Fort Duchesne	3.55		
Vermont	Vernon	93	15	West Burke	34	28	Union Village Dam	5.65		
Virginia	Richmond WSO	98	29	Floyd 2 NE	42	22	Amelia 3 SE	15.31		
Virgin Islands	Truman Field FAA AP	91	30	Alex Hamilton Field FAA	63	17	Tague Bay	10.04		
Washington	Lower Monumental Dam	108	9	Saint John	33	27	Spruce	11.79		
West Virginia	Ravenswood Lock Park	96	25	Canaan Valley	37	22	Mathias			
Wisconsin	La Crosse FAA AP	97	23	Foxboro	34	31	Minocqua Dam	13.77		
Wyoming	2 Stations	102	12	Bondurant	19	19	Noose	4.18		

## METRIC UNITS

AUGUST 1978

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## METRIC UNITS

AUGUST 1970

[illegible]

CLIMATOLOGICAL DATA  
METRIC UNITS

METRIC UNITS

AUGUST 1970

[illegible]



## CLIMATOLOGICAL DATA

METRIC UNITS

AUGUST 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind				No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Station Q	Sea level	Average maximum		Average minimum		Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min. 0 °C or lower	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days					Snow- ice pellets	Fastest mile (1.6 kilometers)	Speed	Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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## METRIC UNITS

AUGUST 1978

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## AUGUST 1978

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## CLIMATOLOGICAL DATA

METRIC UNITS

AUGUST 1978

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation				Wind				No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	No. of days		Resultant speed	Resultant direction	Speed	Direction	Fastest mile (1.6 kilometers)		Date						
											Max 22.2° or above	Min. 0° or lower					25 mm. or more	With thunderstorms								Total	Maximum depth on ground				
WASHINGTON	59	1009.5	1016.5	26.1	10.9	17.5	0.4	37.8	8	7-8	26+	2	0	11.7	72	37	8	12	13	2	0	0	1.5	21	8.9	19 24	6	7	18	6.9	
	59	1009.5	1016.8	26.6	10.9	15.8	0.9	35.6	7	6.1	22	2	0	12.2	84	175	105	43	17	0	0	0.8	22	8.9	5 25	4	9	18	7.4		
	59	1009.5	1016.8	26.4	10.9	15.8	0.9	35.6	8	11.7	23	1	0	11.7	69	42	20	11	11	0	0	0	13.9	5 25	7	10	14	6.5			
	122	1000.3	1016.4	25.6	13.6	18.6	0.9	35.0	8	11.1	27	8	0	7.8	56	30	3	19	12	1	0	1.1	22	9.4	5 25	7	8	16	6.5		
	718	931.9	1016.5	25.2	12.4	18.6	-1.2	36.7	9	6.7	27	8	0	7.8	56	43	29	19	9	1	0	1.9	19	11.2	5 10	7	8	16	6.5		
SPokane	1204	881.1	1016.5	16.7	18.4	12.6	-0.6	30.0	8	4.4	23+	0	0	7.8	56	106	46	49	15	0	0	0	1.9	19	11.2	5 10	7	8	16	6.5	
	289	976.3	1016.5	28.4	15.6	22.1	-1.1	40.6	8	11.1	27+	11	0	8.3	52	58	47	32	7	0	0	1.6	28	11.6	8 0	13	5	13	9.2	6.1	
	321	976.3	1016.3	28.3	11.1	19.7	-0.6	38.3	9	4.4	23+	9	0	8.3	52	10	3	5	6	0	0	0	1.6	28	11.6	28 15	11	9	11	5.4	
	321	976.3	1016.3	28.3	11.1	19.7	-0.6	38.3	9	4.4	23+	9	0	8.3	52	10	3	5	6	0	0	0	1.6	28	11.6	28 15	11	9	11	5.4	
	321	976.3	1016.3	28.3	11.1	19.7	-0.6	38.3	9	4.4	23+	9	0	8.3	52	10	3	5	6	0	0	0	1.6	28	11.6	28 15	11	9	11	5.4	
WEST INDIES	4	1014.6	1016.9	31.7	25.1	28.4	1.1	33.3	30+	22.8	16	11	0	23.9	80	82	-96	34	17	6	0	0	3.8	8	11.6	3 16+	7	15	9	5.7	5.8
	4	1014.6	1016.9	31.7	25.1	28.4	1.1	33.3	30+	22.8	16	11	0	23.9	80	82	-96	34	17	6	0	0	3.8	8	11.6	3 16+	7	15	9	5.7	5.8
	4	1014.6	1016.9	31.7	25.1	28.4	1.1	33.3	30+	22.8	16	11	0	23.9	80	82	-96	34	17	6	0	0	3.8	8	11.6	3 16+	7	15	9	5.7	5.8
	4	1014.6	1016.9	31.7	25.1	28.4	1.1	33.3	30+	22.8	16	11	0	23.9	80	82	-96	34	17	6	0	0	3.8	8	11.6	3 16+	7	15	9	5.7	5.8
	4	1014.6	1016.9	31.7	25.1	28.4	1.1	33.3	30+	22.8	16	11	0	23.9	80	82	-96	34	17	6	0	0	3.8	8	11.6	3 16+	7	15	9	5.7	5.8
WEST VIRGINIA	763	932.3	1016.6	26.4	16.1	21.3	0.8	30.0	3	8.9	21	0	0	16.7	79	118	23	36	15	12	0	0	0.9	21	6.7	36 20+	2	11	18	7.5	7.5
	286	985.1	1016.9	28.7	16.9	23.8	0.7	32.2	19	13.3	21	1	0	19.4	82	209	115	78	12	9	0	0	0.5	21	18.8	3 29	5	11	15	7.0	7.0
	596	949.9	1016.9	26.9	15.7	21.3	1.7	30.0	16+	18.3	21	0	0	19.4	82	123	21	30	15	0	0	0	0.5	20	9.8	28 30	2	11	14	7.0	7.0
	252	986.8	1016.3	29.2	19.6	24.4	1.1	33.9	25	13.9	21	5	0	19.4	78	107	22	30	12	8	0	0	0.5	20	9.8	28 30	2	11	18	7.8	7.8
	187	986.8	1016.3	27.7	19.2	23.5	0.3	31.7	28	14.4	22	0	0	19.4	78	94	9	35	14	0	0	0	10.7	20	9.8	28 30	2	11	18	7.8	7.8
WISCONSIN	204	995.5	1016.0	26.3	14.2	20.3	0.4	32.2	14	8.3	20+	1	0	15.6	75	111	44	43	8	6	0	0	1.7	22	10.7	5 18	10	12	9	5.3	5.3
	194	991.8	1016.1	25.4	16.7	23.1	1.2	36.1	23	10.6	4	1	0	17.2	73	30	-46	16	7	5	0	0	1.5	18	10.3	5 18+	8	17	6	4.8	4.8
	262	985.4	1016.6	27.9	13.7	20.8	0.4	32.8	24	6.7	4	4	0	16.1	76	41	-36	16	7	6	0	0	1.5	21	10.3	5 18+	8	17	6	4.8	4.8
	205	992.2	1017.0	25.8	16.3	21.1	0.4	31.1	15	10.6	4	0	0	17.2	79	87	19	42	9	6	0	0	1.6	21	16.1	5 18	11	13	7	4.9	4.9
	205	992.2	1017.0	25.8	16.3	21.1	0.4	31.1	15	10.6	4	0	0	17.2	79	87	19	42	9	6	0	0	1.6	21	16.1	5 18	11	13	7	4.9	4.9
WYOMING	1627	839.8	1014.4	27.8	10.8	19.3	-1.6	35.0	11	5.6	19	8	0	6.4	44	24	9	12	7	6	0	0	2.0	23	13.4	26 12	11	12	8	5.0	5.0
	1867	815.1	1014.6	25.8	10.1	17.9	-1.8	31.1	11	5.0	19+	0	0	6.4	47	35	-2	22	10	10	0	0	1.7	27	25.5	4 14	16	16	6	3.1	3.1
	1867	815.1	1014.6	25.8	10.1	17.9	-1.8	31.1	11	5.0	19+	0	0	6.4	47	35	-2	22	10	10	0	0	1.7	27	25.5	4 14	16	16	6	3.1	3.1
	1867	815.1	1014.6	25.8	10.1	17.9	-1.8	31.1	11	5.0	19+	0	0	6.4	47	35	-2	22	10	10	0	0	1.7	27	25.5	4 14	16	16	6	3.1	3.1
	1867	815.1	1014.6	25.8	10.1	17.9	-1.8	31.1	11	5.0	19+	0	0	6.4	47	35	-2	22	10	10	0	0	1.7	27	25.5	4 14	16	16	6	3.1	3.1
1208	879.8	1014.8	27.4	9.7	18.6	-2.1	36.7	12	5.0	12	7	0	7.8	55	38	14	25	7	8	0	0	0.5	26	15.2	4 14	12	10	9	5.0	5.0	



## HEATING DEGREE DAYS

(Base 65°F.)

AUGUST 1978

State and Station	Current season		Normals	July through this month	State and Station	Current season		Normals	July through this month	State and Station	Current season		Normals	July through this month	State and Station	Current season		Normals	July through this month
	This month	Period July through this month				This month	Period July through this month				This month	Period July through this month				This month	Period July through this month		
ALABAMA					ALABAMA					ALABAMA					ALABAMA				
BIRMINGHAM	0	0	0	0	BIRMINGHAM	0	0	0	0	BIRMINGHAM	0	0	0	0	BIRMINGHAM	0	0	0	0
HUNTSVILLE	0	0	0	0	HUNTSVILLE	0	0	0	0	HUNTSVILLE	0	0	0	0	HUNTSVILLE	0	0	0	0
MOBILE	0	0	0	0	MOBILE	0	0	0	0	MOBILE	0	0	0	0	MOBILE	0	0	0	0
MONTGOMERY	0	0	0	0	MONTGOMERY	0	0	0	0	MONTGOMERY	0	0	0	0	MONTGOMERY	0	0	0	0
ALASKA					ALASKA					ALASKA					ALASKA				
ANCHORAGE	160	346	502		ANCHORAGE	160	346	502		ANCHORAGE	160	346	502		ANCHORAGE	160	346	502	
ANNETTE	196	479	442		ANNETTE	196	479	442		ANNETTE	196	479	442		ANNETTE	196	479	442	
BARROW	874	1046	1664		BARROW	874	1046	1664		BARROW	874	1046	1664		BARROW	874	1046	1664	
BARTER ISLAND	867	1010	1584		BARTER ISLAND	867	1010	1584		BARTER ISLAND	867	1010	1584		BARTER ISLAND	867	1010	1584	
BETHEL	293	627	713		BETHEL	293	627	713		BETHEL	293	627	713		BETHEL	293	627	713	
BETHEL	297	341	437		BETHEL	297	341	437		BETHEL	297	341	437		BETHEL	297	341	437	
BIO DELTA	216	229	303		BIO DELTA	216	229	303		BIO DELTA	216	229	303		BIO DELTA	216	229	303	
COLD BAY	325	726	887		COLD BAY	325	726	887		COLD BAY	325	726	887		COLD BAY	325	726	887	
COALBANKS	176	241	452		COALBANKS	176	241	452		COALBANKS	176	241	452		COALBANKS	176	241	452	
CULCANA					CULCANA					CULCANA					CULCANA				
HOMER	312	676	784		HOMER	312	676	784		HOMER	312	676	784		HOMER	312	676	784	
JUNEAU	262	340	620		JUNEAU	262	340	620		JUNEAU	262	340	620		JUNEAU	262	340	620	
KING SALMON	237	343	673		KING SALMON	237	343	673		KING SALMON	237	343	673		KING SALMON	237	343	673	
KODIAK	239	672	651		KODIAK	239	672	651		KODIAK	239	672	651		KODIAK	239	672	651	
KOTZEBIE	244	443	814		KOTZEBIE	244	443	814		KOTZEBIE	244	443	814		KOTZEBIE	244	443	814	
MC GRATH	224	470	874		MC GRATH	224	470	874		MC GRATH	224	470	874		MC GRATH	224	470	874	
NOME	323	644	952		NOME	323	644	952		NOME	323	644	952		NOME	323	644	952	
ST. PAUL ISLAND	496	1040	1141		ST. PAUL ISLAND	496	1040	1141		ST. PAUL ISLAND	496	1040	1141		ST. PAUL ISLAND	496	1040	1141	
TALKEETNA	226	444	542		TALKEETNA	226	444	542		TALKEETNA	226	444	542		TALKEETNA	226	444	542	
UNALAKLEET	237	473	747		UNALAKLEET	237	473	747		UNALAKLEET	237	473	747		UNALAKLEET	237	473	747	
VALDEZ	294	648	764		VALDEZ	294	648	764		VALDEZ	294	648	764		VALDEZ	294	648	764	
VARUAT	306	642	735		VARUAT	306	642	735		VARUAT	306	642	735		VARUAT	306	642	735	
ARIZONA					ARIZONA					ARIZONA					ARIZONA				
FLAGSTAFF	73	106	145		FLAGSTAFF	73	106	145		FLAGSTAFF	73	106	145		FLAGSTAFF	73	106	145	
PHOENIX	0	0	0		PHOENIX	0	0	0		PHOENIX	0	0	0		PHOENIX	0	0	0	
TUCSON	0	0	0		TUCSON	0	0	0		TUCSON	0	0	0		TUCSON	0	0	0	
WINSTON	0	0	0		WINSTON	0	0	0		WINSTON	0	0	0		WINSTON	0	0	0	
YUMA	0	0	0		YUMA	0	0	0		YUMA	0	0	0		YUMA	0	0	0	
ARKANSAS					ARKANSAS					ARKANSAS					ARKANSAS				
FORT SMITH	0	0	0		FORT SMITH	0	0	0		FORT SMITH	0	0	0		FORT SMITH	0	0	0	
LITTLE ROCK	0	0	0		LITTLE ROCK	0	0	0		LITTLE ROCK	0	0	0		LITTLE ROCK	0	0	0	
MO. LITTLE ROCK	0	0	0		MO. LITTLE ROCK	0	0	0		MO. LITTLE ROCK	0	0	0		MO. LITTLE ROCK	0	0	0	
CALIFORNIA					CALIFORNIA					CALIFORNIA					CALIFORNIA				
BAKERSFIELD	0	0	0		BAKERSFIELD	0	0	0		BAKERSFIELD	0	0	0		BAKERSFIELD	0	0	0	
RISHUP	1	1	5		RISHUP	1	1	5		RISHUP	1	1	5		RISHUP	1	1	5	
BLUE CANYON	107	142	85		BLUE CANYON	107	142	85		BLUE CANYON	107	142	85		BLUE CANYON	107	142	85	
EUREKA U	241	515	514		EUREKA U	241	515	514		EUREKA U	241	515	514		EUREKA U	241	515	514	
FRESNO	0	0	0		FRESNO	0	0	0		FRESNO	0	0	0		FRESNO	0	0	0	
LONG BEACH	0	0	0		LONG BEACH	0	0	0		LONG BEACH	0	0	0		LONG BEACH	0	0	0	
LOS ANGELES	0	0	0		LOS ANGELES	0	0	0		LOS ANGELES	0	0	0		LOS ANGELES	0	0	0	
LOS ANGELES U	0	0	0		LOS ANGELES U	0	0	0		LOS ANGELES U	0	0	0		LOS ANGELES U	0	0	0	
MT SHASTA	115	143	101		MT SHASTA	115	143	101		MT SHASTA	115	143	101		MT SHASTA	115	143	101	
OAKLAND	21	70	154		OAKLAND	21	70	154		OAKLAND	21	70	154		OAKLAND	21	70	154	
RED BLUFF	0	0	0		RED BLUFF	0	0	0		RED BLUFF	0	0	0		RED BLUFF	0	0	0	
SACRAMENTO	0	0	0		SACRAMENTO	0	0	0		SACRAMENTO	0	0	0		SACRAMENTO	0	0	0	
SANDBERG R	23	43	17		SANDBERG R	23	43	17		SANDBERG R	23	43	17		SANDBERG R	23	43	17	
SAN DIEGO	0	0	0		SAN DIEGO	0	0	0		SAN DIEGO	0	0	0		SAN DIEGO	0	0	0	
SAN FRANCISCO	65	176	177		SAN FRANCISCO	65	176	177		SAN FRANCISCO	65	176	177		SAN FRANCISCO	65	176	177	
SAN FRANCISCO U	147	333	379		SAN FRANCISCO U	147	333	379		SAN FRANCISCO U	147	333	379		SAN FRANCISCO U	147	333	379	
SANTA MARIA	45	147	214		SANTA MARIA	45	147	214		SANTA MARIA	45	147	214		SANTA MARIA	45	147	214	
STOCKTON	0	0	0		STOCKTON	0	0	0		STOCKTON	0	0	0		STOCKTON	0	0	0	
COLORADO					COLORADO					COLORADO					COLORADO				
ALAMOSA	141	149	151		ALAMOSA	141	149	151		ALAMOSA	141	149	151		ALAMOSA	141	149	151	
COLORADO SPRINGS	44	47	22		COLORADO SPRINGS	44	47	22		COLORADO SPRINGS	44	47	22		COLORADO SPRINGS	44	47	22	
DENVER	20	20	0		DENVER	20	20	0		DENVER	20	20	0		DENVER	20	20	0	
GRAND JUNCTION	6	6	0		GRAND JUNCTION	6	6	0		GRAND JUNCTION	6	6	0		GRAND JUNCTION	6	6	0	
PUEBLO	0	0	0		PUEBLO	0	0	0		PUEBLO	0	0	0		PUEBLO	0	0	0	
CONNECTICUT					CONNECTICUT					CONNECTICUT					CONNECTICUT				
BRIDGEPORT	0	4	0		BRIDGEPORT	0	4	0		BRIDGEPORT	0	4	0		BRIDGEPORT	0	4	0	
HARTFORD	15	24	12		HARTFORD	15	24	12		HARTFORD	15	24	12		HARTFORD	15	24	12	
DELAWARE					DELAWARE					DELAWARE					DELAWARE				
WILMINGTON	0	6	0		WILMINGTON	0	6	0		WILMINGTON	0	6	0		WILMINGTON	0	6	0	
DIST. OF COLUMBIA					DIST. OF COLUMBIA					DIST. OF COLUMBIA					DIST. OF COLUMBIA				
WASHINGTON D.C.	0	0	0		WASHINGTON D.C.	0	0	0		WASHINGTON D.C.	0	0	0		WASHINGTON D.C.	0	0	0	
WASHINGTON NATIONAL	0	0	0		WASHINGTON NATIONAL	0	0	0		WASHINGTON NATIONAL	0	0	0		WASHINGTON NATIONAL	0	0	0	
FLORIDA					FLORIDA					FLORIDA					FLORIDA				
APALACHICOLA U	0	0	0		APALACHICOLA U	0	0	0		APALACHICOLA U	0	0	0		APALACHICOLA U	0	0	0	
DAYTONA BEACH	0	0	0		DAYTONA BEACH	0	0	0		DAYTONA BEACH	0	0	0		DAYTONA BEACH	0	0	0	
FORT MYERS	0	0	0		FORT MYERS	0	0	0		FORT MYERS	0	0	0		FORT MYERS	0	0	0	
JACKSONVILLE	0	0	0		JACKSONVILLE	0	0	0											

## (Base 65°F.)

AUGUST 1978

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# STORM SUMMARY

AUGUST 1978

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				HEAVY SNOWSTORMS AND BLIZZARDS				ICE STORMS				ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE	
								PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS
Alabama								2				4				5													
Alaska								4				6		1	1	5													
Arizona								5	?			4		1	5	4													
Arkansas	4	3		3	6																								
California																													
Colorado	2	2			3			5	5			6		2	3	3	4												
Connecticut																													
Delaware	6	6		1	5							5		1	1	6													
Florida	1	1		1	4							4	4	2	3														
Georgia																													
Hawaii																													
Idaho	1	1		1	4			5								3													
Illinois	3	2			5			?		5		5	?			6													
Indiana																													
Iowa								5	4			5	3	1	3														
Kansas								6	6			6	6		1	5													
Kentucky	1	1			4											5													
Louisiana	1	1			4			4	4	1	4	5	4		1	4													
Maine																													
Maryland & DC	2	2			4				3			4	4	2	2	4													
Massachusetts																													
Michigan	9	4		12	6			3	6		9	6	6	1	8	5													
Minnesota	6	3			7			5	6		1	6	6	2	1	2													
Mississippi	1	1	1		2							4	5		2	4	5												
Missouri								3			2	5																	
Montana	2	1						5	6																				
Nebraska	2	1			3			5	6		1	6	6	1		4	3												
Nevada																													
New Hampshire								6	?																				
New Jersey																													
New Mexico																													
New York	2	2			6							3				3													
North Carolina	2	2			3			3							8	3													
North Dakota	4	3			4			5	6			6	5	1	1	3	3												
Ohio											5	4			2	4													
Oklahoma																													
Oregon	3	3			5							5	?	1	1	5	?												
Pacific																													
Pennsylvania	5	2			2						1	5	?		3	5													
Puerto Rico																													
Rhode Island																													
South Carolina												4				1	4												
South Dakota								5	5			5	5																
Tennessee	1	1		26	6						2				1														
Texas	6	5			3			4				5	?	1		5													
Utah																													
Vermont																													
Virginia	1	1			3			4	5			5	3	2	1	5													
Virgin Islands																													
Washington	1	1			3											1	3												
West Virginia																													
Wisconsin	1	1			?						2	?	?			?	?												
Wyoming	1	1						5	C			4	1																



## Average monthly values

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ANCHORAGE, AK 1006 MB							ANCHORAGE, AK 1006 MB							ANCHORAGE, AK 1006 MB							ANCHORAGE, AK 1006 MB							ANCHORAGE, AK 1006 MB						
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Speed m.p.s.				
980	31	5.0	17.0	10.0	10	1.5	31	1.519	16.0	9.0	11	1.1	31	1.505	16.0	10.0	10	2.0	31	45	13.0	8.0	15	1.7	30	37	12.5	10.3	14	1.2				
1000	31	18.0	17.0	10.0	10	1.5	31	1.519	16.0	9.0	11	1.1	31	1.505	16.0	10.0	10	2.0	31	128	13.0	9.0	15	1.7	29	37	10.2	10.4	16	1.6				
920	31	50.0	17.1	13.1	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
840	31	150.0	16.3	13.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
760	31	250.1	15.8	11.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
680	31	350.1	8.7	-2.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
600	31	450.1	5.0	-5.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
520	31	550.1	2.8	-10.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
440	31	650.1	-1.0	-13.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
360	31	750.1	-4.0	-16.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
280	31	850.1	-6.0	-18.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
200	31	950.1	-8.0	-20.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
120	31	1050.1	-10.0	-22.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
40	31	1150.1	-12.0	-24.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
10	31	1250.1	-14.0	-26.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				
0	31	1350.1	-16.0	-28.0	17	1.9	31	1.506	16.1	10.1	11	1.1	31	1.506	16.1	10.1	11	2.0	31	541	12.3	7.1	18	1.2	30	556	10.9	7.3	18	3.0				

ATHENS, GA 990 MB										BARROW, AK 1014 MB										BARTER ISLAND, AK 1012 MB										BETHEL, AK 1006 MB										BISMARCK, ND 954 MB									
SFC	71	48	21.5	20.5	20	4	91	6	1.4	1.7	1.8	31	15	1.8	1.2	08	1.5	31	39	11.8	10	22	1.5	31	503	13.6	10.2	01	4																				
1370	31	602	22.7	18.7	08	1.0	915	2.3	-5.6	10	1.8	38	222	2.8	1.7	05	1.5	23	127	12.4	9.8	21	1.5	23	562	14.8	9.8	33	5																				
900	31	1,672	20.4	16.4	26	1.5	31	975	7.8	-8.5	31	531	969	4.2	-5.7	27	3.3	31	972	8.8	5.1	18	3.8	31	1,005	19.1	6.8	26	2.2																				
850	31	1,586	17.1	13.3	26	1.1	31	1,478	2.4	-11.1	36	1.6	31	1,493	2.9	-7.5	27	4.9	31	1,844	6.2	2.8	19	4.4	31	1,495	16.9	3.7	27	3.6																			
800	31	2,291	14.7	9.4	24	1.5	31	1,926	4.7	-14.7	26	2.7	31	1,952	6	-10.5	28	5.9	31	1,943	3.9	-1.8	19	4.7	31	2,009	13.4	9	27	4.3																			
750	31	2,624	11.1	4.4	20	2.1	31	2,494	-1.6	-15.1	26	3.4	31	2,475	-2.1	-13.0	29	7.7	31	2,462	1.2	-4.7	20	4.2	31	2,548	9.4	-2.6	28	5.5																			
700	31	3,198	8.1	-4.5	22	2.2	31	2,998	-4.4	-16.7	27	5.2	31	2,993	-4.9	-17.8	28	8.0	31	3,015	-1.5	-9.6	19	4.2	31	3,117	5.6	-6.6	27	7.6																			
650	31	3,800	4.9	-16.7	22	2.1	31	3,168	-7.8	-27.1	26	13.3	31	3,167	-20.8	-28.7	29	17.6	31	3,632	-4.5	-13.7	20	4.2	31	4,411	-31.1	-82.7	26	15.2																			
600	31	4,456	1.0	-8.7	24	2.7	31	4,168	-11.0	-24.7	26	7.4	31	4,181	-11.6	-24.3	28	10.2	31	4,229	-8.1	-18.4	21	3.9	31	4,359	-2.8	-12.8	27	9.6																			
550	31	5,151	-2.5	-14.4	24	2.3	31	4,860	-15.7	-28.4	26	8.4	31	4,842	-15.8	-26.6	29	11.1	31	4,899	-12.2	-21.5	22	4.1	31	5,043	-7.4	-18.0	28	10.8																			
500	31	5,901	-7.0	-18.0	24	2.8	31	5,586	-19.6	-32.6	28	9.3	31	5,555	-20.7	-31.8	29	12.3	31	5,622	-16.9	-26.1	22	4.0	31	5,778	-12.4	-23.5	27	11.1																			
450	31	6,716	-11.9	-24.2	25	2.4	31	6,338	-24.7	-35.5	26	10.3	31	6,297	-25.1	-35.3	29	13.2	31	6,405	-22.1	-31.6	23	4.4	31	6,575	-17.6	-30.2	28	12.8																			
400	31	7,609	-17.8	-30.4	26	3.1	31	7,184	-31.0	-43.6	26	11.3	31	7,171	-31.6	-42.0	29	14.1	31	7,260	-28.5	-37.4	25	4.4	31	7,446	-23.8	-35.5	28	13.9																			
350	31	8,590	-24.8	-37.1	26	3.7	31	8,067	-40.2	-52.4	26	13.3	31	8,101	-38.4	-48.4	29	16.2	31	8,208	-35.3	-45.0	24	4.8	31	8,400	-29.5	-41.7	28	15.0																			
300	31	9,696	-31.4	-42.6	26	3.7	31	9,161	-45.7	-57.6	26	15.0	31	9,195	-46.5	-56.6	29	18.3	31	9,266	-43.3	-49.3	25	5.9	31	9,461	-39.8	-48.5	27	16.5																			
250	31	10,946	-43.3	-47.2	27	3.9	31	10,387	-50.6	-62.8	26	14.0	31	10,379	-52.2	-61.7	29	16.7	31	10,472	-50.3	-60.4	24	6.3	31	10,704	-48.9	-57.6	27	16.6																			
200	31	12,414	-54.7	-57.2	27	5.6	31	11,803	-64.6	-76.8	26	11.3	31	11,789	-69.3	-78.6	29	13.2	29	11,925	-50.9	-59.9	26	7.9	30	12,145	-55.3	-64.7	27	20.7																			
175	31	13,257	-60.4	-62.6	29	5.4	31	12,650	-69.2	-81.4	26	11.2	31	12,688	-68.1	-77.4	29	12.4	29	12,795	-50.8	-59.8	27	7.4	30	12,996	-55.8	-65.0	27	20.5																			
150	31	14,295	-65.3	-67.3	31	1.9	30	13,490	-87.9	-99.1	26	9.9	31	13,485	-88.2	-97.5	30	10.5	29	13,799	-51.3	-60.3	27	6.3	30	13,976	-56.6	-65.7	27	18.1																			
125	31	15,105	-68.5	-70.5	35	2.2	30	14,901	-97.9	-109.1	26	9.1	31	14,895	-98.4	-107.7	27	9.5	29	14,982	-51.7	-60.7	27	4.8	30	15,127	-57.5	-66.6	27	15.2																			
100	31	16,641	-68.0	-70.0	27	1.2	30	16,377	-98.2	-109.4	29	6.5	31	16,374	-98.0	-107.3	27	7.0	29	16,444	-51.8	-60.8	27	3.4	29	16,537	-57.9	-67.0	27	10.0																			
80	31	17,993	-64.6	-66.6	27	4.1	29	17,742	-84.0	-95.2	30	4.4	31	17,676	-87.8	-97.0	31	5.1	28	17,871	-51.5	-60.5	26	2.3	29	17,948	-56.6	-65.7	28	5.7																			
70	31	18,811	-62.2	-64.2	26	6.1	29	18,704	-87.7	-96.9	30	4.1	31	18,799	-87.4	-96.6	30	3.9	28	18,736	-51.3	-60.3	29	1.8	29	18,798	-52.4	-61.5	27	3.7																			
60	31	19,732	-60.8	-62.8	26	7.9	26	19,744	-86.3	-95.5	31	3.5	30	19,731	-87.1	-96.3	32	3.4	28	19,741	-50.1	-59.1	32	1.0	28	19,785	-54.3	-63.4	27	1.7																			
50	31	20,918	-67.4	-69.4	26	9.5	25	20,955	-86.3	-95.5	31	2.9	29	20,943	-86.9	-96.1	31	2.7	27	20,926	-50.7	-59.7	36	0.9	28	20,957	-52.9	-62.0	26	0.9																			
40	31	22,336	-65.9	-67.9	26	11.5	24	22,400	-84.0	-93.2	30	1.6	29	22,376	-86.2	-95.4	30	2.2	27	22,369	-49.6	-58.6	36	0.6	28	22,400	-50.6	-59.7	26	0.6																			
30	31	24,191	-51.0	-53.0	26	11.8	24	24,268	-84.0	-93.2	30	1.1	29	24,246	-84.5	-93.7	30	2.4	26	24,265	-47.8	-56.8	36	0.4	28	24,281	-49.1	-58.2	26	0.4																			
20	31	25,352	-45.7	-47.7	26	13.7	14	25,458	-84.1	-93.3	02	2.1	29	25,454	-84.3	-93.5	02	2.0	24	25,512	-46.6	-55.6	07	3.1	28	25,480	-47.9	-57.0	09	5.9																			
10	31	26,687	-47.6	-49.6	26	14.7	7	27,104	-84.1	-93.3	29	2.7	28	26,688	-84.3	-93.5	07	2.0	19	27,733	-44.8	-53.8	08	3.2	26	26,959	-46.0	-55.1	09	6.7																			
5	31	28,757	-45.6	-47.6	26	15.9	2	29,006	-84.1	-93.3	29	2.7	29	29,006	-84.1	-93.3	07	2.6	14	28,960	-41.2	-50.2	08	4.5	24	28,995	-43.6	-52.7	08	7.7																			
0	31	31,497	-41.3	-43.3	26	19.4	0	31,611	-75.7	-84.7	05	2.2	0	31,611	-75.7	-84.7	05	2.2	0	31,611	-75.7	-84.7	05	2.2	0	31,611	-75.7	-84.7	05	10.5																			
4	31	33,338	-30.6	-32.6	26	11	33,338	-30.6	-32.6	11	33,338	-30.6	-32.6	11	33,338	-30.6	-32.6	11	33,338	-30.6	-32.6	11	33,338	-30.6	-32.6	11	33,338	-30.6	-32.6	11	14.4																		

Average monthly values

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## Average monthly values

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[illegible]

SOLARWIND TEL. # 1011 MB										SOLARWIND TEL. # 1011 MB										HILLO, MI 1215 MB										MONTGOMERY, WV 990 MB										INTERNATIONAL FALLS, MN 971 MB									
550	21	28	18.2	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
1450	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246	20.0	18.2	20	5	31	359	12.3	10.9	19	1.4																			
950	21	180	17.4	14.5	78	6.4	71	111	25.4	25.7	14	7	31	16	22.5	21.0	25	1.3	31	246																													

JOHN F. KENNEDY INT. AP NY										JOHNSTON IS., PACIFIC AREA										KEY WEST, FL									
1018 MB										1013 MB										1016 MB									
01	31	1	27	21.5	7.5	1	10.3	10.9	16	31	5	21.2	18.5	01	3	31	3	26.8	23.6	09	6.3	31	3	27.5	23.8	12	2.4		
1	31	118	24.0	5.5	1	10.3	10.9	16	31	158	21.0	17.7	30	4	31	113	25.9	22.9	09	6.8	31	148	27.0	23.4	12	3.6			
2	31	20.4	7.3	1	10.3	10.9	16	31	603	19.5	15.2	27	2.3	31	565	22.4	20.7	09	7.9	31	601	23.4	20.4	12	4.6				
3	31	1.9	10.4	1	10.3	10.9	16	31	1.058	17.4	12.6	27	4.4	31	1.034	19.3	16.7	09	8.2	31	1.072	20.6	15.9	12	4.4				
4	31	1.532	17.2	11.3	1	10.3	10.9	16	31	1.525	14.9	8.4	26	6.3	31	1.525	16.6	12.7	09	5.6	31	1.565	15.5	10.9	12	3.7			
5	31	2.4	14.2	1.4	1	10.3	10.9	16	31	2.406	13.5	3.8	26	8.0	31	2.241	15.1	6.2	09	5.9	31	2.088	14.5	6.7	11	3.2			
6	31	11.9	11.9	1.9	1	10.3	10.9	16	31	2.605	9.9	0.26	8.8	31	2.586	12.7	2.1	09	5.4	31	2.625	11.6	2.7	11	3.8				
750	31	1.7	1.9	-1.9	7.5	24	1.194	7.4	-7.7	1.1	31	1.177	6.4	-3.4	26	9.8	31	1.163	9.9	-5.4	09	4.4	31	1.199	8.4	-2.2	12	2.8	
800	31	1.773	-6.0	1	22	1.484	9.1	-4.0	27	1.1	31	3.782	3.5	-7.4	27	31	3.775	6.5	-9.2	09	3.2	31	3.809	5.1	-5.5	11	2.5		
900	31	1.773	-9.7	1.4	22	1.484	9.1	-4.0	27	1.1	31	3.782	-1.1	-11.3	27	31	3.775	-7.7	-12.1	10	2.4	31	3.809	1.3	-9.1	11	2.7		
1000	31	1.773	-18.4	1.4	22	1.484	9.1	-4.0	27	1.1	31	3.782	-16.2	12.0	31	31	3.775	-1.2	-16.7	09	1.8	31	3.809	-2.7	-13.3	10	2.6		
1100	31	1.773	-18.6	1.4	22	1.484	9.1	-4.0	27	1.1	31	3.782	-11.3	12.0	31	31	3.775	5.8	-20.0	09	7.1	31	3.809	-7.7	-17.5	08	2.3		
1200	31	1.773	-23.9	1.4	22	1.484	9.1	-4.0	27	1.1	31	3.782	-13.0	-25.1	27	31	3.775	-11.1	-23.9	27	8.31	31	3.809	-12.4	-23.8	08	2.4		
1300	31	1.773	-29.2	1.4	22	1.484	9.1	-4.0	27	1.1	31	3.782	-19.6	-32.5	28	31	3.775	-17.0	-30.3	26	3.6	31	3.809	-18.3	-29.8	08	3.4		
1400	31	1.773	-35.6	1.4	22	1.484	9.1	-4.0	27	1.1	31	3.782	-26.5	-36.3	29	31	3.775	-24.1	-36.8	27	5.4	31	3.809	-25.3	-36.7	07	4.1		
1500	31	1.773	-43.0	1.4	22	1.484	9.1	-4.0	27	1.1	31	3.782	-36.7	-46.5	27	31	3.775	-32.5	-44.4	27	9.0	31	3.809	-33.6	-45.3	06	4.1		
250	31	10.141	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
300	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
350	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
400	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
450	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
500	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
550	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
600	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
650	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
700	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
750	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
800	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
850	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
900	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
950	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1000	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1050	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1100	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1150	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1200	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1250	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1300	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1350	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1400	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1450	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1500	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1550	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1600	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1650	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1700	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1750	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1800	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1850	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1900	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
1950	31	10.1	-1.1	1.9	22	10.933	-4.7	1	10.3	10.933	-4.7	1	19.2	31	10.944	-32.6	26	12.6	31	10.943	-43.9	05	5.5	31	10.943	-43.9	05	5.5	
2000	31	10																											



## Average monthly values

# RAWINSONDE DATA

Average monthly values

AUGUST 1978

NORTH PLATTE, NE 919 MB										OAKLAND, CA 1013 MB										OMAHA, NE 968 MB									
Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m/s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m/s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m/s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m/s					
1000	31	18.9	17.7	19.6	18	4.7	31	18.9	15.5	11.9	27	4.7	31	11.8	13.8	11.9	27	1.4	31	403	18.5	15.6	16	1.4					
950	31	1.069	18.1	17.7	18	4.7	31	1.071	18.1	11.9	27	4.7	31	1.113	13.8	11.9	27	1.4	31	564	20.8	14.5	20	3.4					
900	31	1.184	18.1	17.7	18	4.7	31	1.184	18.1	11.9	27	4.7	31	1.552	18.2	11.9	27	1.4	31	1,033	20.8	9.9	23	6.0					
850	31	2,074	13.7	7.1	25	18.1	31	2,074	13.7	7.1	25	18.1	31	2,322	21.1	1.4	31	4.6	31	1,525	18.4	5.6	25	4.6					
800	31	2,618	1.8	1.8	25	18.1	31	2,618	1.8	1.8	25	18.1	31	2,733	16.7	-9.1	29	3.4	31	2,042	15.1	3.9	25	4.8					
750	31	3,161	7.0	-2.6	18	4.7	31	3,161	7.0	-2.6	18	4.7	31	3,257	13.8	-8.4	27	3.6	31	2,586	11.3	-3.6	5.5						
700	31	3,795	7.0	-2.6	18	4.7	31	3,795	7.0	-2.6	18	4.7	31	3,854	13.0	-10.8	28	12.5	31	3,158	7.8	-4.1	26	6.3					
650	31	4,430	-11.0	25	4.7	31	4,430	-11.0	25	4.7	31	4,430	-11.0	25	4.7	31	4,412	-2	31	3,766	4.2	-9.1	26	6.8					
600	31	5,064	-3.1	17	26	5.7	31	5,064	-3.1	17	26	5.7	31	5,103	-3.4	-19.6	25	6.7	31	5,103	-4.8	-18.2	27	8.4					
550	31	5,697	-7.1	-23.2	26	5.7	31	5,697	-7.1	-23.2	26	5.7	31	5,855	-8.6	-24.3	25	7.8	31	5,896	-9.5	-24.6	26	9.2					
500	31	6,331	-16.9	-33.9	26	5.7	31	6,331	-16.9	-33.9	26	5.7	31	6,663	-14.1	-30.6	25	9.3	31	6,652	-14.5	-30.2	27	10.6					
450	31	7,585	-18.9	-33.9	26	5.7	31	7,585	-18.9	-33.9	26	5.7	31	7,556	-10.6	-37.5	25	16.4	30	7,535	-20.6	-35.2	27	11.4					
400	31	8,232	-25.9	-46.1	18	4.7	31	8,232	-25.9	-46.1	18	4.7	31	8,512	-28.0	-43.3	25	14.0	30	8,122	-27.7	-40.8	27	12.5					
350	31	8,866	-31.7	-51.7	18	4.7	31	8,866	-31.7	-51.7	18	4.7	31	9,599	-36.8	-47.9	25	16.4	30	9,599	-36.1	-47.1	27	15.9					
300	31	9,500	-36.8	-51.7	18	4.7	31	9,500	-36.8	-51.7	18	4.7	31	10,839	-46.2		25	16.4	30	10,839	-57.7		27	18.6					
250	31	10,134	-46.2	-51.7	18	4.7	31	10,134	-46.2	-51.7	18	4.7	31	12,291	-54.4		25	19.3	29	12,291	-55.3		26	17.1					
200	31	10,768	-54.4	-51.7	18	4.7	31	10,768	-54.4	-51.7	18	4.7	31	13,142	-58.7		25	16.7	29	13,142	-58.7		26	18.2					
150	31	11,402	-58.7	-51.7	18	4.7	31	11,402	-58.7	-51.7	18	4.7	31	14,104	-61.3		25	17.3	29	14,104	-61.3		27	15.2					
100	31	12,036	-61.3	-51.7	18	4.7	31	12,036	-61.3	-51.7	18	4.7	31	15,230	-63.4		25	17.3	29	15,230	-63.4		27	16.2					
50	31	12,670	-63.4	-51.7	18	4.7	31	12,670	-63.4	-51.7	18	4.7	31	16,599	-63.2		26	8.3	29	16,599	-63.2		26	6.6					
0	31	13,304	-63.2	-51.7	18	4.7	31	13,304	-63.2	-51.7	18	4.7	31	17,982	-60.4		25	2.6	29	17,982	-60.4		27	2.4					
	31	13,938	-60.4	-51.7	18	4.7	31	13,938	-60.4	-51.7	18	4.7	31	18,817	-59.9		18	6.2	29	18,817	-59.9		27	4.8					
	31	14,572	-59.9	-51.7	18	4.7	31	14,572	-59.9	-51.7	18	4.7	31	19,787	-57.4		10	3.5	29	19,787	-57.4		08	1.6					
	31	15,206	-57.4	-51.7	18	4.7	31	15,206	-57.4	-51.7	18	4.7	31	20,946	-55.1		10	4.6	29	20,946	-55.1		09	2.9					
	31	15,840	-55.1	-51.7	18	4.7	31	15,840	-55.1	-51.7	18	4.7	31	22,377	-53.2		08	7.1	29	22,377	-53.2		09	5.2					
	31	16,474	-53.2	-51.7	18	4.7	31	16,474	-53.2	-51.7	18	4.7	31	24,242	-50.8		09	7.8	25	24,242	-50.8		09	8.0					
	31	17,108	-50.8	-51.7	18	4.7	31	17,108	-50.8	-51.7	18	4.7	31	26,443	-49.5		09	7.8	25	26,443	-49.5		09	8.0					
	31	17,742	-49.5	-51.7	18	4.7	31	17,742	-49.5	-51.7	18	4.7	31	28,900	-47.2		09	9.0	23	28,900	-47.2		09	9.3					
	31	18,376	-47.2	-51.7	18	4.7	31	18,376	-47.2	-51.7	18	4.7	31	30,816	-44.6		09	10.2	27	30,816	-44.6		09	11.4					
	31	19,010	-44.6	-51.7	18	4.7	31	19,010	-44.6	-51.7	18	4.7	31	31,546	-39.8		09	11.5	10	31,546	-39.8		09	13.9					
	31	19,644	-39.8	-51.7	18	4.7	31	19,644	-39.8	-51.7	18	4.7	31	33,993	-36.3					33,993	-36.3								

DAISY HILL, ARIZONA 1012 MB										PITTSBURGH, PA 977 MB										PONAPE, CAROLINE IS. 1004 MB										PORTLAND, ME 1016 MB									
500	31	1	28.4	23.4	15	7.7	31	1	17.6	15.4	20	4.5	21	25.9	18.3	10.5	18	4.3	31	39	28.8	24.6	09	1.3	31	20	16.7	14.3	31	1.9									
1000	31	11.1	25.4	22.4	15	4.4	31	1	10.9	10.7								31	77	27.5	23.3	09	1.5	31	154	18.0	11.1	31	1.3										
950	31	1.031	19.4	17.7	07	4.7	31	1	17.2	17.2	24	2.6	31	6.01	19.1	16.1	25	2.3	31	531	24.2	20.9	10	3.1	31	595	17.8	10.6	29	1.8									
900	31	1,031	19.4	17.7	07	4.7	31	1	17.2	17.2	24	2.6	31	1,287	17.3	13.3	27	4.0	31	1,704	21.0	18.1	10	4.1	31	1,056	15.0	8.8	28	2.9									
850	31	1,575	16.6	13.7	06	4.7	31	1	1,543	16.0	7.1	27	4.7	1,153	15.1	4.3	27	5.0	31	1,497	17.9	14.4	10	4.8	31	1,538	12.5	5.2	27	5.0									
800	31	2,119	14.4	8.6	06	4.7	31	1	2,056	17.1	2.6	27	5.1	2,066	12.7	3.4	26	6.0	31	2,016	15.6	10.2	10	4.9	31	2,046	10.8	-2.7	27	6.6									
750	31	2,663	11.4	2.1	06	4.7	31	1	2,076	10.1	-2.2	27	5.1	2,076	9.6	-4.26	7.2	31	2,562	13.6	6.2	09	5.3	31	2,582	8.3	-2.9	27	7.8										
700	31	3,207	8.4	-2.1	06	4.7	31	1	3,167	8.1	-5.0	27	5.1	3,173	6.5	-6.26	7.9	31	3,140	9.8	3.6	09	5.3	31	3,149	5.3	-6.5	27	10.4										
650	31	3,751	5.4	-5.1	06	4.7	31	1	3,773	4.9	-9.1	27	7.1	3,780	3.1	-6.26	7.9	31	3,753	6.5	-1.0	10	6.0	31	3,751	2.4	-9.4	27	11.7										
600	31	4,295	2.4	-8.1	06	4.7	31	1	4,418	-3.3	-13.7	27	7.7	4,425	-4.4	-13.3	26	8.0	31	4,407	3.0	-3.9	10	6.6	31	4,394	-1.1	-13.0	27	12.5									
550	31	5,112	-6.6	-15.2	06	3.2	2.2	5,174	-9.4	-15.4	27	8.4	5,116	-6.2	-16.3	26	9.4	5,107	-8.8	-7.8	10	6.3	31	5,083	-5.3	-17.7	27	13.3											
500	31	5,888	-9.6	-20.1	06	4.7	31	1	5,854	-9.8	-20.9	27	9.1	5,841	-8.6	-23.1	26	11.2	31	5,864	-14.7	-14.7	10	5.6	31	5,825	-9.8	-22.1	27	14.9									
450	31	6,701	-12.6	-24.1	06	4.7	31	1	6,661	-14.7	-29.7	27	10.1	6,679	-13.7	-26.4	26	12.6	31	6,686	-14.9	-3.9	19.1	10	4.9	31	6,630	-15.3	-25.2	27	16.1								
400	31	7,559	-15.6	-26.1	06	4.7	31	1	7,544	-17.4	-34.4	27	11.4	7,559	-19.5	-32.6	26	13.8	31	7,568	-14.9	-25.5	09	4.3	31	7,509	-21.4	-34.6	27	17.4									
350	31	8,417	-18.6	-29.1	06	4.7	31	1	8,422	-21.7	-47.7	27	12.1	8,430	-21.9	-47.4	26	15.1	31	8,588	-21.6	-33.1	08	3.7	31	8,483	-28.6	-39.3	27	18.0									
300	31	9,280	-21.6	-32.1	06	4.7	31	1	9,305	-24.7	-54.7	27	14.9	9,312	-24.7	-54.7	27	18.4	31	9,703	-29.9	-42.4	09	3.5	31	9,565	-37.1	-44.8	27	21.0									
250	31	10,166	-24.6	-35.1	06	4.7	31	1	10,166	-45.0		27	14.9	10,167	-44.5		27	19.4	31	10,974	-40.3	-51.1	07	3.6	31	10,800	-48.5		27	23.3									
200	31	11,044	-27.6	-38.1	06	4.7	31	1	11,044	-50.4		26	18.3	11,045	-55.4		28	22.7	31	12,455	-52.9		06	3.9	31	12,250	-55.5		27	23.2									
150	31	12,088	-30.6	-41.1	06	4.7	31	1	12,115	-58.6		27	17.5	12,178	-59.7		28	21.1	31	13,303	-59.8		08	2.4	31	13,095	-58.3		27	22.1									
100	31	13,238	-33.6	-44.1	06	4.7	31	1	13,177	-61.4		27	17.5	13,175	-62.8		28	16.9	31	14,249	-67.6		13	1.8	31	14,062	-59.8		27	18.0									
50	31	15,317	-36.6	-47.1	06	4.7	31	1	15,344	-64.1		27	11.5	15,345	-64.1		27	10.9	31	15,326	-75.3		15	2.3	31	15,197	-61.0		27	14.5									
0	31	17,491	-39.6	-50.1	06	4.7	31	1	17,491	-67.4		27	12.7	17,492	-68.3		28	15.1	31	16,600	-82.7		10	6.4	31	16,585	-80.5		28	7.8									
	31	19,689	-42.6	-53.1	06	4.7	31	1	19,689	-66.6		27	14.5	19,689	-66.6		28	17.2	31	19,702	-70.3		09	7.1	31	19,782	-58.4		29	3.4									
	31	21,916	-45.7	-56.1	06	4.7	31	1	21,916	-57.6		28	14.1	21,916	-57.6		28	3.6	31	19,644	-63.3		10	4.6	31	19,806	-55.3		04	1.8									
	31	24,175	-48.7	-59.1	06	4.7	31	1	24,175	-55.1		29	4.5	24,175	-55.1		29	5.6	31	20,771	-60.9		10	2.7	29	20,977	-52.3		09	2.4									
	31	26,441	-51.7	-62.1	06	4.7	31	1	26,441	-53.1		29	6.1	26,441	-53.1		29	7.5	31	22,167	-58.6		12	2.1	27	22,418	-51.5		09	5.3									
	31	28,716	-54.7	-65.1	06	4.7	31	1	28,716	-51.1		30	7.2	28,716	-51.1		30	8.6	31	23,990	-54.6		10	7.3	27	24,296	-49.0		09	7.9									
	31	31,002	-57.7	-68.1	06	4.7	31	1	31,002	-49.3		31	8.5	31,002	-49.3		31	10.1	30	25,163	-52.2		10	8.1	30	25,463	-47.4		09	8.1									
	31	33,298	-60.7	-71.1	06	4.7	31	1	33,298	-46.6		31	9.5	33,298	-46.6		31	11.7	29	26,983	-48.9		09	19.2	29	26,983	-46.6		08	9.3									
	31	35,594	-63.7	-74.1	06	4.7	31	1	35,594	-43.9		31	11.7	35,594	-43.9		31	12.6	25	28,512	-47.2		09	30.7	22	28,925	-41.7		09	10.4									
	31	37,890	-66.7	-77.1	06	4.7	31	1	37,890	-40.4		31	14.5	37,890	-40.4		31	21	31,221	-42.7		21	42.1	6	31,692	-37.0													
	31	40,186	-69.7	-80.1	06	4.7	31	1	40,186	-37.6										6	33,652	-37.6																	



## Average monthly values

AUGUST 1976

[illegible]



# RAWINSONDE DATA

Average monthly values

AUGUST 1978

LAWRENCE, IA 1015 MB										WEST PALM BEACH, FL 1017 MB										WINNEMUCCA, NV 870 MB										WINSLOW, AZ 853 MB										YAKUTAT, AK 1011 MB									
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C †	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C †	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C †	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C †	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C †	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C †	Direction tens of deg.	Resultant Wind Speed m.p.h.													
1000	31	22.0	-1.5	-1.5	11	7	24.6	21.7	11	6	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
1200	31	23.2	-2.5	-2.5	11	7	25.2	23.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
1400	31	24.4	-3.5	-3.5	11	7	26.8	25.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
1600	31	25.6	-4.5	-4.5	11	7	28.4	26.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
1800	31	26.8	-5.5	-5.5	11	7	30.0	28.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
2000	31	28.0	-6.5	-6.5	11	7	31.6	30.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
2200	31	29.2	-7.5	-7.5	11	7	33.2	31.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
2400	31	30.4	-8.5	-8.5	11	7	34.8	33.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
2600	31	31.6	-9.5	-9.5	11	7	36.4	34.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
2800	31	32.8	-10.5	-10.5	11	7	38.0	36.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
3000	31	34.0	-11.5	-11.5	11	7	39.6	38.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
3200	31	35.2	-12.5	-12.5	11	7	41.2	39.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
3400	31	36.4	-13.5	-13.5	11	7	42.8	41.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
3600	31	37.6	-14.5	-14.5	11	7	44.4	42.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
3800	31	38.8	-15.5	-15.5	11	7	46.0	44.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
4000	31	40.0	-16.5	-16.5	11	7	47.6	46.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
4200	31	41.2	-17.5	-17.5	11	7	49.2	47.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
4400	31	42.4	-18.5	-18.5	11	7	50.8	49.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
4600	31	43.6	-19.5	-19.5	11	7	52.4	50.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
4800	31	44.8	-20.5	-20.5	11	7	54.0	52.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
5000	31	46.0	-21.5	-21.5	11	7	55.6	54.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
5200	31	47.2	-22.5	-22.5	11	7	57.2	55.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
5400	31	48.4	-23.5	-23.5	11	7	58.8	57.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
5600	31	49.6	-24.5	-24.5	11	7	60.4	58.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
5800	31	50.8	-25.5	-25.5	11	7	62.0	60.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
6000	31	52.0	-26.5	-26.5	11	7	63.6	62.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
6200	31	53.2	-27.5	-27.5	11	7	65.2	63.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
6400	31	54.4	-28.5	-28.5	11	7	66.8	65.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
6600	31	55.6	-29.5	-29.5	11	7	68.4	66.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
6800	31	56.8	-30.5	-30.5	11	7	70.0	68.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
7000	31	58.0	-31.5	-31.5	11	7	71.6	70.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
7200	31	59.2	-32.5	-32.5	11	7	73.2	71.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
7400	31	60.4	-33.5	-33.5	11	7	74.8	73.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
7600	31	61.6	-34.5	-34.5	11	7	76.4	74.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
7800	31	62.8	-35.5	-35.5	11	7	78.0	76.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
8000	31	64.0	-36.5	-36.5	11	7	79.6	78.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
8200	31	65.2	-37.5	-37.5	11	7	81.2	79.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
8400	31	66.4	-38.5	-38.5	11	7	82.8	81.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
8600	31	67.6	-39.5	-39.5	11	7	84.4	82.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
8800	31	68.8	-40.5	-40.5	11	7	86.0	84.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
9000	31	70.0	-41.5	-41.5	11	7	87.6	86.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
9200	31	71.2	-42.5	-42.5	11	7	89.2	87.7	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
9400	31	72.4	-43.5	-43.5	11	7	90.8	89.3	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
9600	31	73.6	-44.5	-44.5	11	7	92.4	90.9	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
9800	31	74.8	-45.5	-45.5	11	7	94.0	92.5	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					
10000	31	76.0	-46.5	-46.5	11	7	95.6	94.1	12	2.1	31	1,312	13.5	1.3	36	6	31	1,487	17.8	8.0	15	2.1	30	12	10.4	9.8	08	1.0																					

YAP, CARLINE TS. 1017 MB																							
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# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

AUGUST 1974

Sun's zenith distance										Sun's zenith distance											
A.M.					*	P.M.					A.M.					*	P.M.				
78.7°	75.7°	70.7°	60.0°			60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°			60.0°	70.7°	75.7°	78.7°	
MADISON, WI										MAUNA LOA OBSERVATORY, HI											
Air mass										Air mass											
	4.69	3.75	2.81	1.88		1.88	2.81	3.75	4.69		3.34	2.67	2.01	1.34		1.34	2.01	2.67	3.34		
1-----	S 56	S 63	S 70	S 80	-----	-----	-----	S 58	S 52	5-----	1 13	1 25	1 33	1 42	1 50	1 42	-----	-----	-----		
3-----	S 58	S 65	S 73	S 82	-----	-----	-----	M 60	M 51	6-----	1 12	1 29	1 29	1 44	-----	-----	-----	-----	-----		
4-----	S 58	S 64	S 74	S 84	S 94	M 80	M 68	M 59	M 51	7-----	1 07	1 18	1 27	1 38	1 41	-----	-----	-----	-----		
5-----	S 56	S 64	S 72	S 88	S 92	-----	M 67	M 59	M 51	11-----	1 06	1 18	1 27	1 38	1 41	-----	-----	-----	-----		
6-----	S 50	S 56	S 65	S 74	-----	M 73	M 59	M 48	M 40	13-----	1 12	1 20	1 29	1 44	1 52	-----	-----	-----	-----		
7-----	M 38	-----	-----	M 70	M 87	-----	S 38	S 50	S 39	15-----	1 15	1 23	1 32	1 43	-----	-----	-----	-----	-----		
8-----	-----	-----	-----	M 58	-----	-----	S 66	S 58	S 53	18-----	1 13	1 21	1 30	1 41	-----	-----	-----	-----	-----		
9-----	S 53	S 60	S 68	S 78	-----	-----	S 89	S 82	S 74	19-----	1 12	1 25	1 29	1 40	-----	-----	-----	-----	-----		
14-----	HI 19	1 27	1 35	H 54	H 74	H 51	H 39	H 42	H 23	20-----	1 08	1 16	1 27	-----	-----	-----	-----	-----	-----		
16-----	-----	-----	-----	-----	-----	S 89	S 82	S 78	S 74	22-----	1 10	1 17	1 26	1 38	-----	-----	-----	-----	-----		
20-----	S 60	S 66	S 74	S 83	S 93	S 82	S 71	S 62	S 56	23-----	1 08	1 18	1 27	-----	-----	-----	-----	-----	-----		
22-----	-----	-----	-----	-----	M 71	H 52	H 40	H 29	-----	25-----	-----	-----	-----	-----	1 32	1 47	1 57	1 58	-----		
23-----	-----	-----	-----	-----	H 72	H 48	H 38	H 31	H 25	27-----	1 10	1 18	1 27	1 39	-----	-----	-----	-----	-----		
30-----	-----	1 45	H 50	-----	-----	-----	-----	S 56	S 50	Aver-	-----	-----	-----	-----	-----	-----	-----	-----	-----		
31-----	-----	-----	-----	-----	-----	-----	-----	S 52	S 46	ages	1 10	1 19	1 28	1 40	1 53	1 40	1 27	1 18	-----		
Aver-	50	58	64	73	83	68	59	52	47	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----		
ages																					

TUCSON, AZ																			
Air mass										Air mass									
4.64	3.71	2.78	1.86		*	1.86	2.78	3.71	4.64										
1-----	-----	-----	83	99	1 20	1 02	80	71	59										
3-----	-----	-----	-----	-----	1 27	1 03	83	70	62										
4-----	55	-----	-----	97	1 23	94	71	-----	47										
5-----	68	-----	1 01	1 20	-----	-----	-----	-----	-----										
6-----	70	81	93	1 10	1 32	1 11	94	82	69										
7-----	76	86	1 01	1 18	1 44	1 24	1 09	97	86										
8-----	78	88	1 00	1 16	1 34	1 05	86	71	60										
9-----	52	71	-----	1 00	1 26	89	-----	-----	-----										
10-----	72	84	97	1 11	1 30	1 02	-----	-----	-----										
11-----	56	64	78	98	1 22	92	-----	-----	-----										
13-----	59	72	85	92	1 18	-----	-----	-----	-----										
14-----	90	98	-----	1 23	1 39	1 24	1 10	99	88										
15-----	86	97	1 07	1 21	1 36	1 20	1 02	89	81										
16-----	79	88	1 01	1 14	1 34	1 16	1 03	92	83										
17-----	79	89	99	1 10	1 31	-----	91	80	72										
18-----	72	86	1 00	1 14	1 34	-----	-----	-----	-----										
19-----	-----	-----	-----	1 31	-----	-----	-----	-----	-----										
20-----	79	88	1 02	1 16	1 36	-----	-----	-----	-----										
21-----	-----	-----	-----	-----	1 18	-----	-----	-----	85										
22-----	82	91	1 03	1 19	1 38	-----	-----	-----	-----										
24-----	62	75	87	1 07	1 31	-----	-----	-----	-----										
25-----	67	79	94	1 12	1 36	1 16	1 06	86	75										
26-----	76	86	1 01	1 21	1 40	-----	1 11	-----	89										
27-----	87	98	1 10	1 26	1 44	1 22	1 03	91	81										
28-----	81	91	1 04	1 22	1 38	1 21	1 05	94	86										
29-----	75	85	98	1 17	1 36	1 07	89	72	62										
30-----	79	88	1 01	1 19	1 40	1 14	-----	-----	-----										
31-----	77	88	1 01	1 20	1 39	1 18	98	86	74										
Aver-	73	84	97	1 12	1 33	1 10	96	84	74										
ages																			

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . .	230	222	214	163	90	19	200	157	74	134	194	167	141	86	113	150	123	76	162	96	92	55	134	96	128	117	122	122	102	89	123	127

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

Ø Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

@ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

⬥ No Storm Data Report received for this State.

◇ Report Incomplete.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

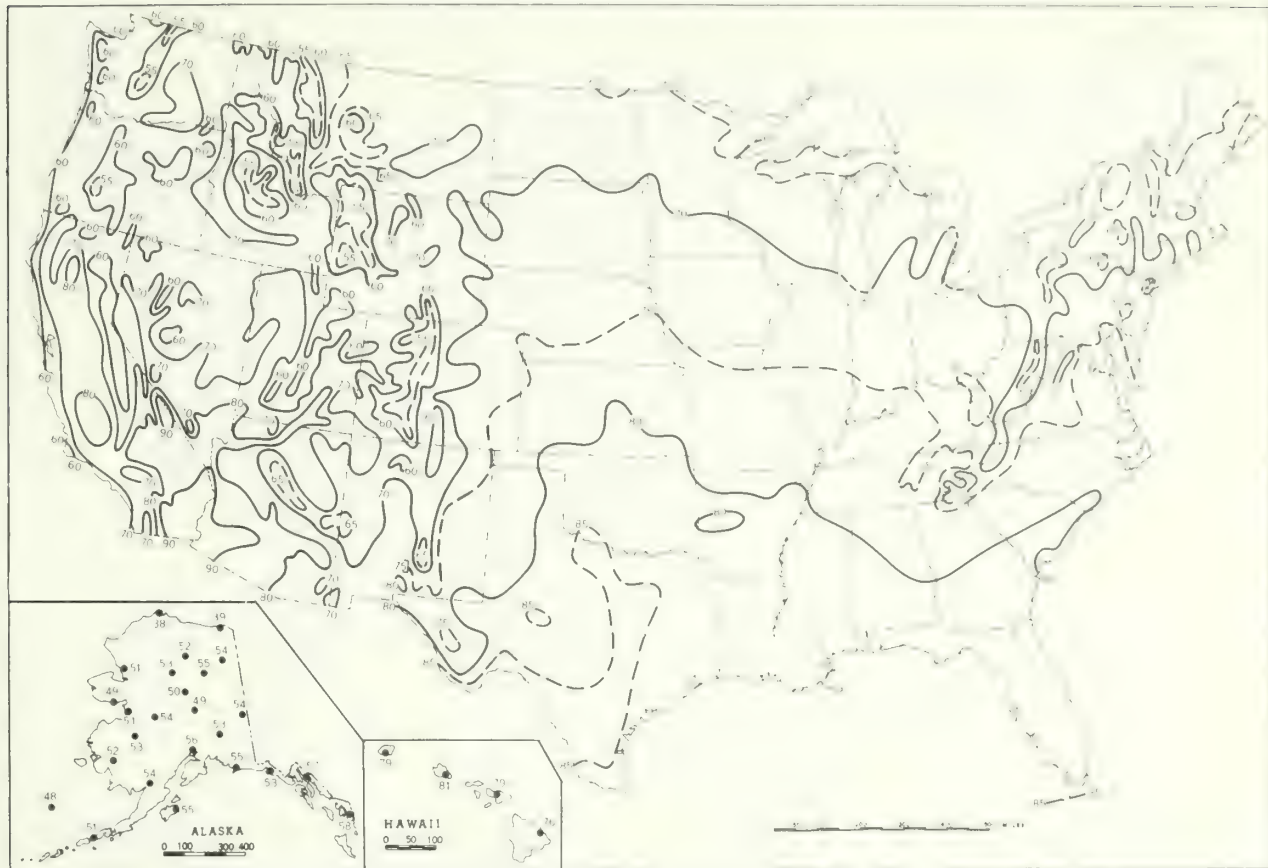
( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	GF	Ground Fog	K	Smoke	N	Sand
D	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), August.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), August 1978

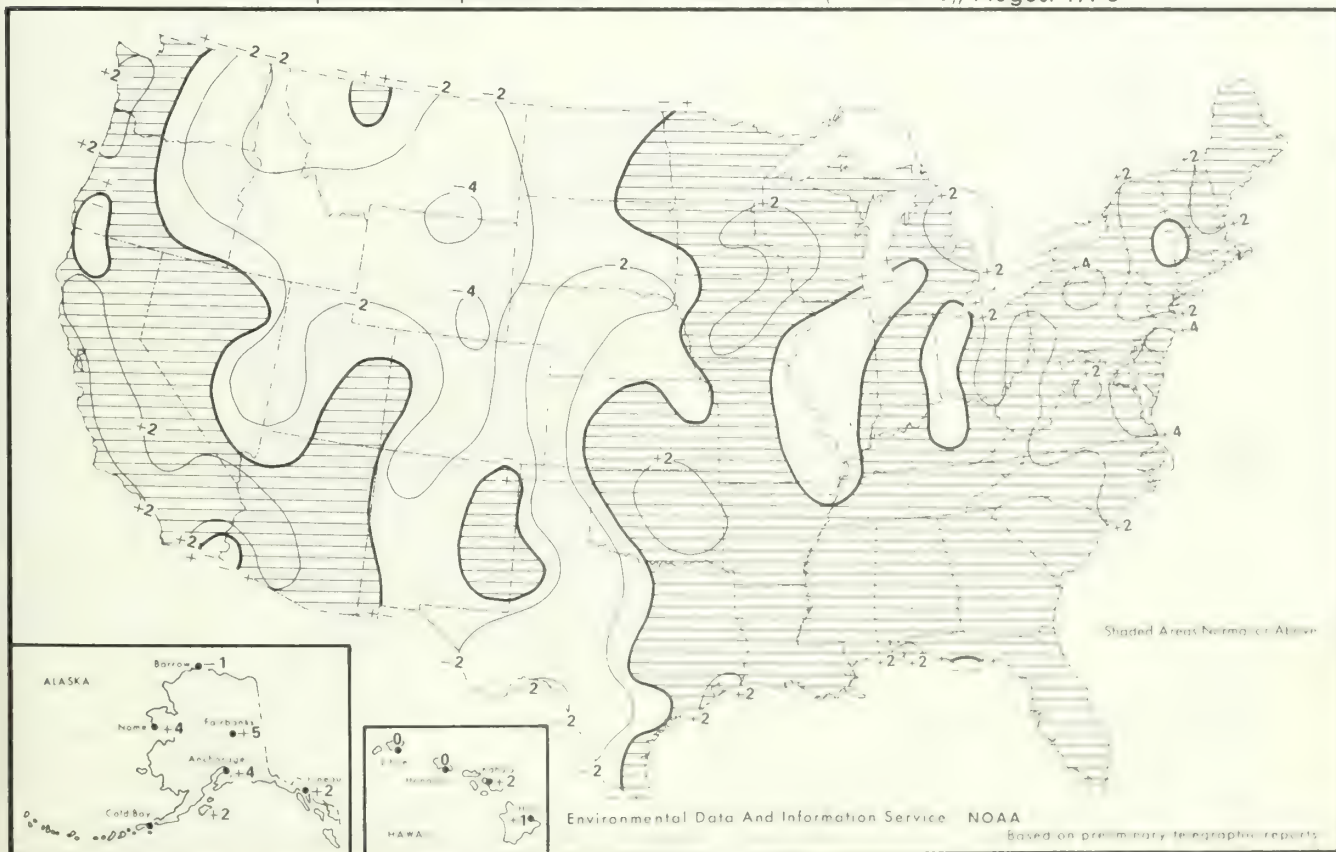
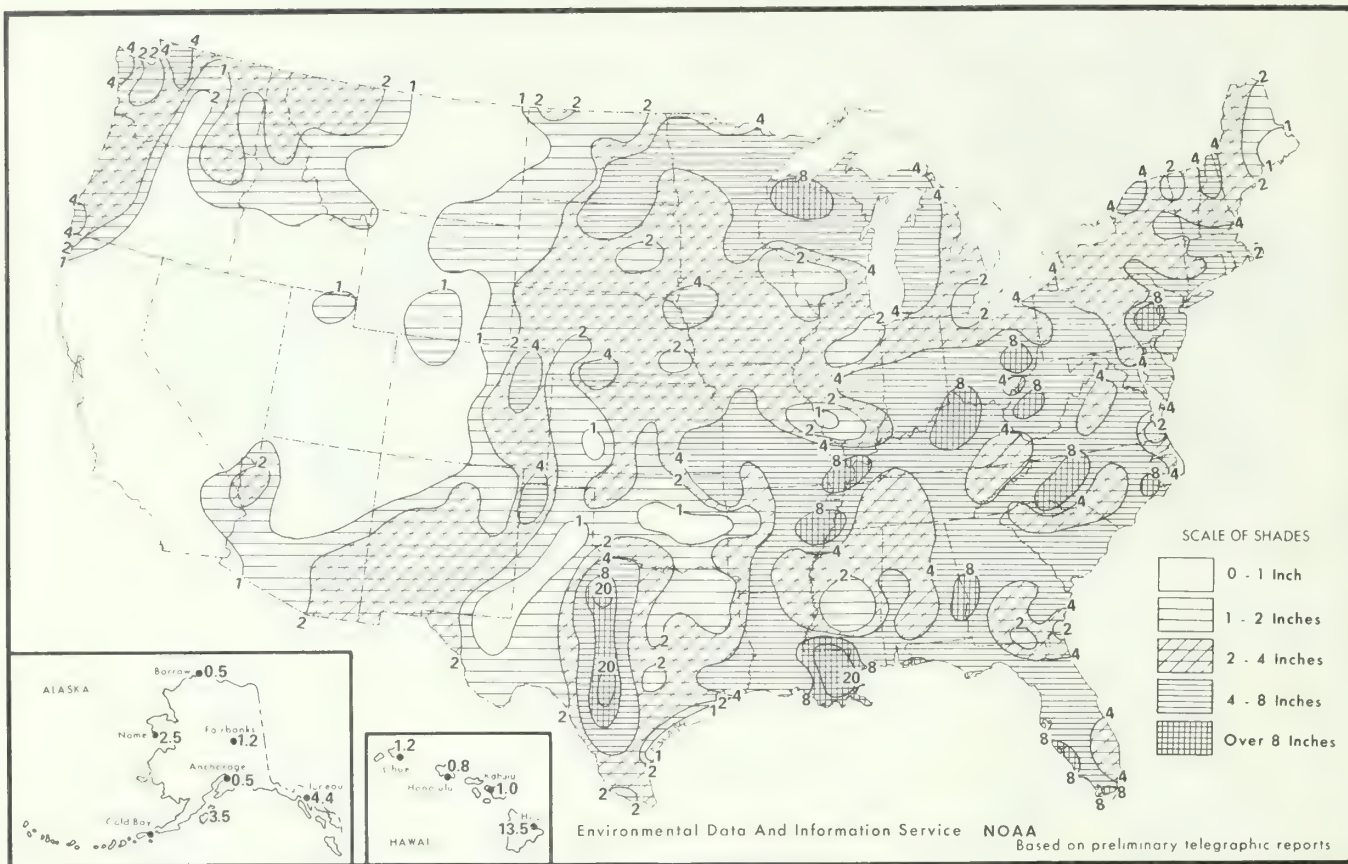


Chart II. A. Total Precipitation (Inches), August 1978



B. Percentage of Normal Precipitation, August 1978

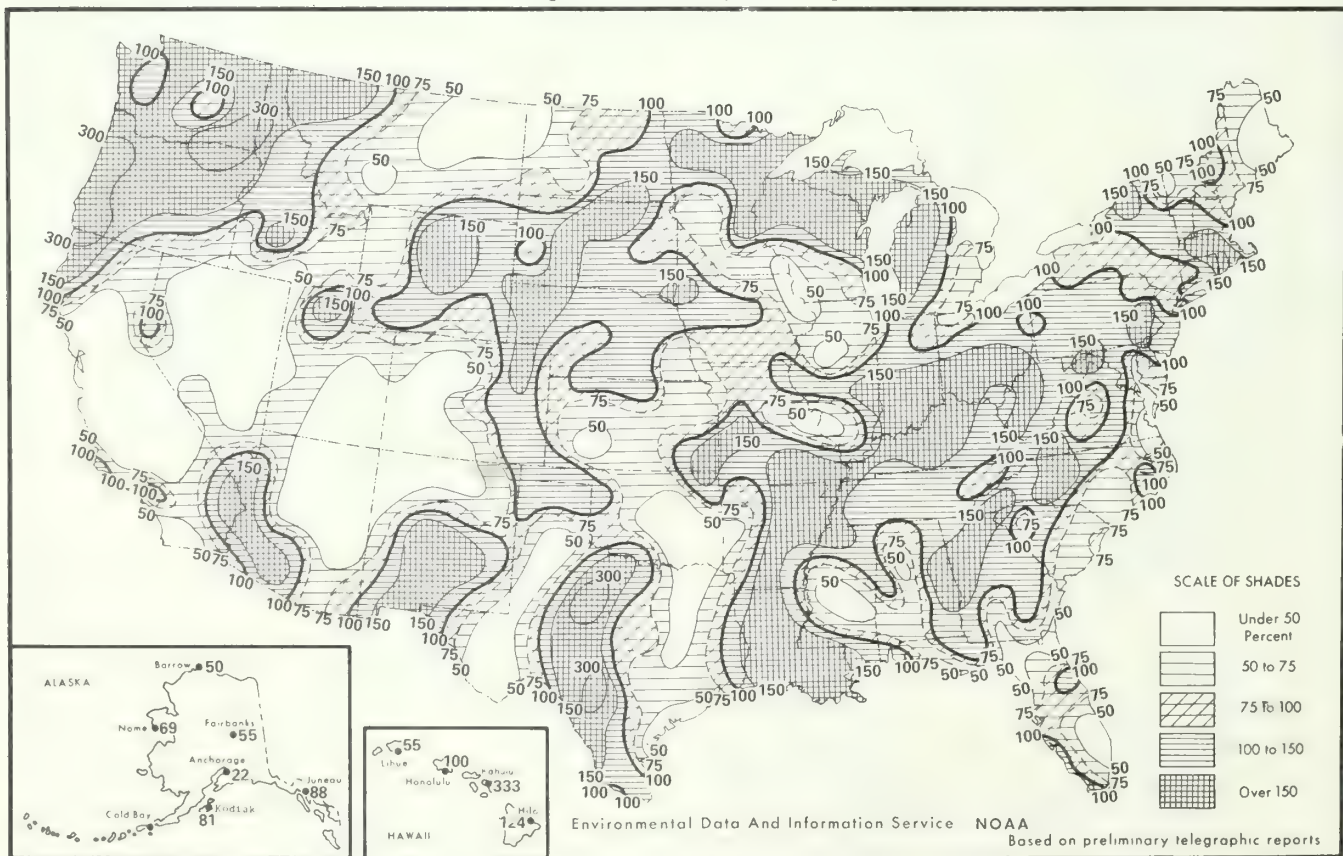




Chart III. Tracks of Centers of Anticyclones at Sea Level, August 1978

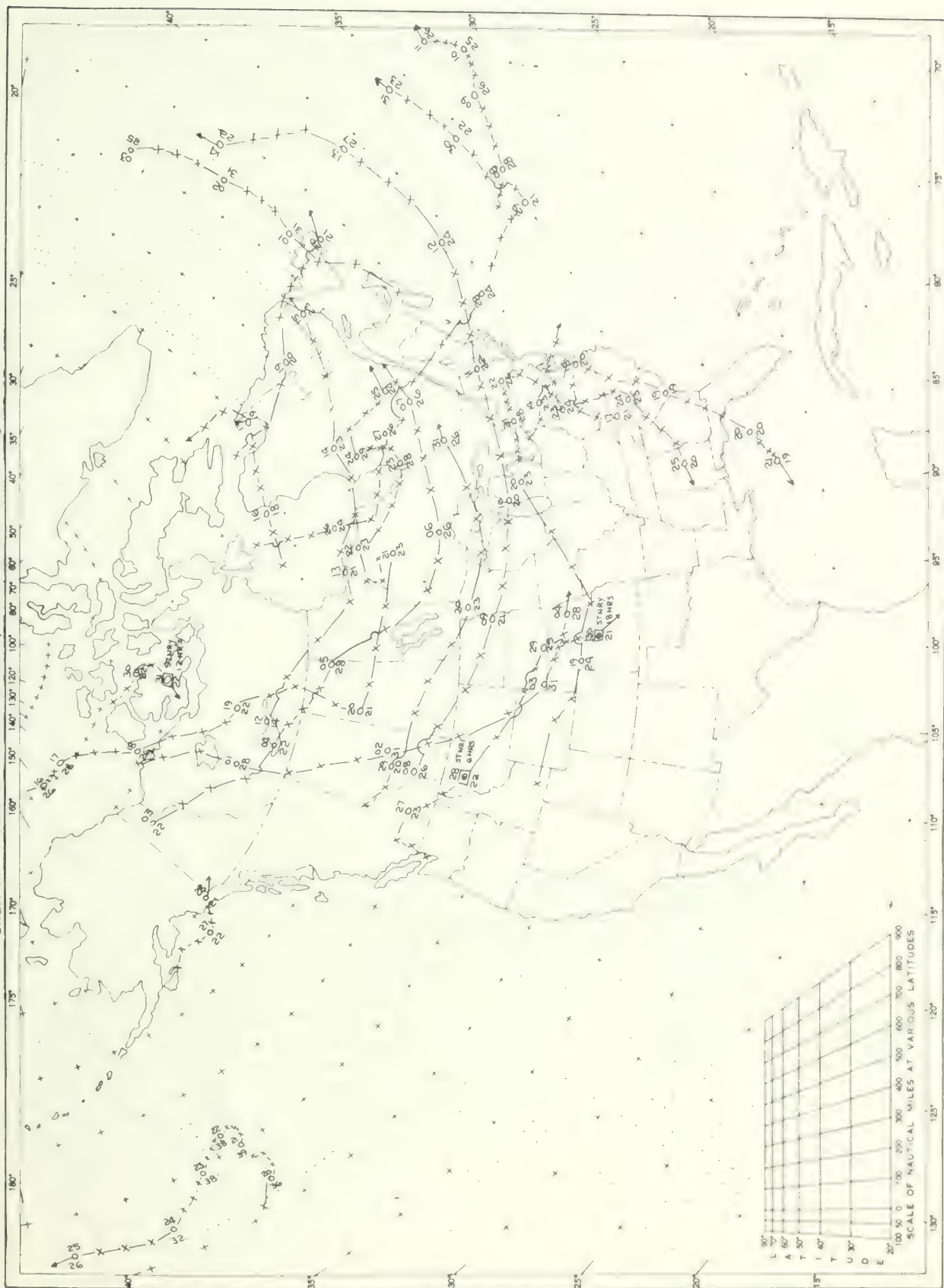
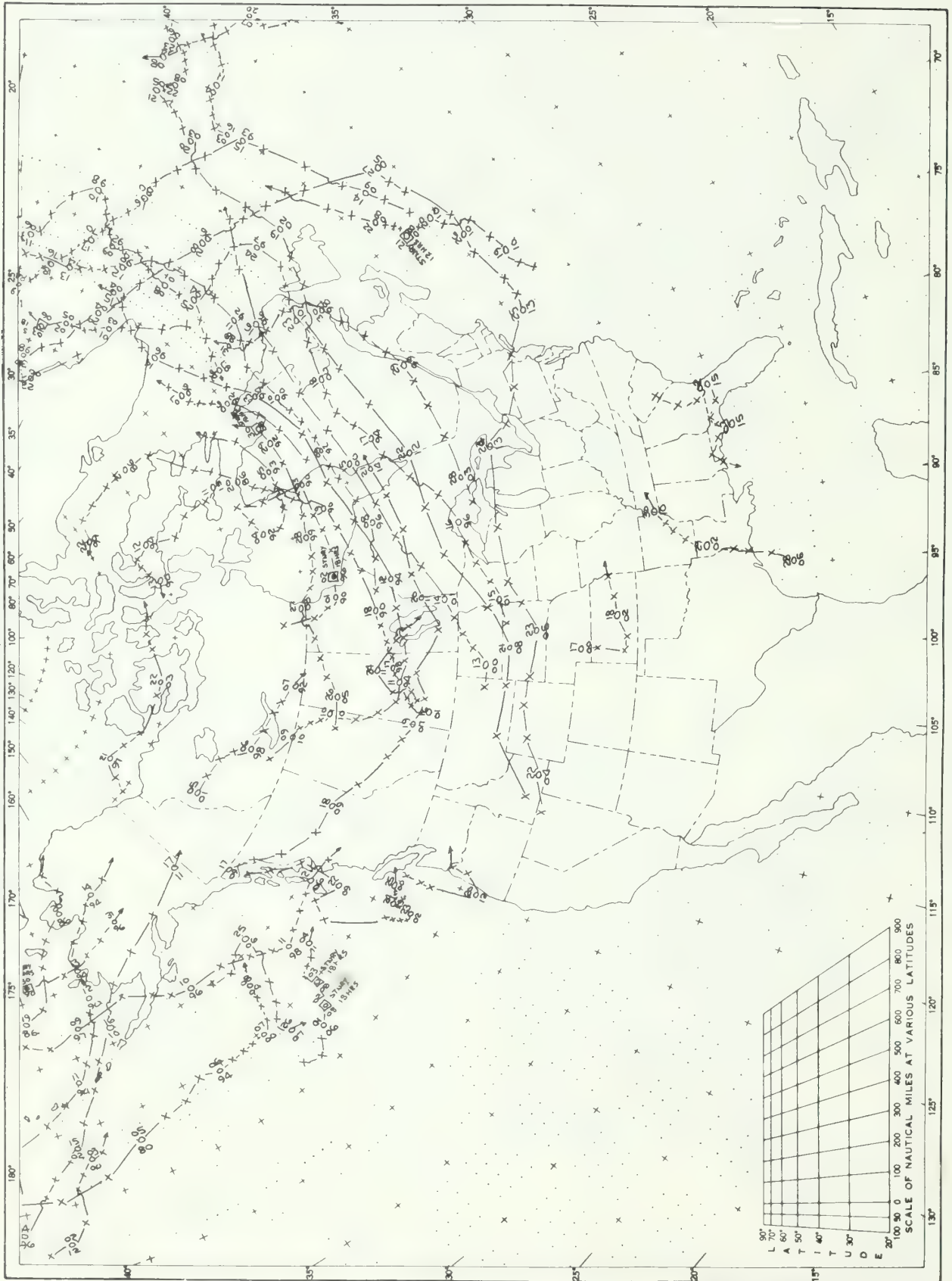




Chart IV. Tracks of Centers of Cyclones at Sea Level, August 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



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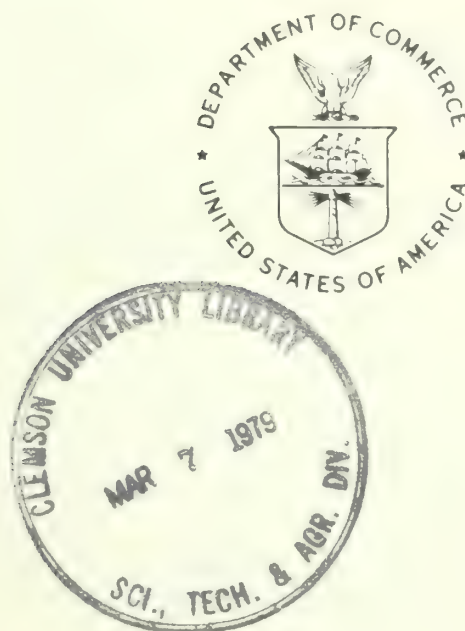
SEPTEMBER 1978

VOLUME 29

NUMBER 9

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

**noaa**

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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MONTHLY SUMMARY SOLAR RADIATION DATA

The National Climatic Center has published the January 1977 issue of Monthly Summary Solar Radiation Data. This Department of Energy sponsored publication contains edited hourly totals, daily totals, and monthly means of total hemispheric (global) solar radiation on a horizontal surface for the new 38-station NOAA Solar Radiation Network. Data are shown in kilojoules per square meter for each hour Local Standard Time. The January 1977 issue contains measurements from 23 stations. Subsequent issues will include additional stations as they become operational. Monthly issues will be published as rapidly as possible in order to make up the backlog.

The subscription price is \$8.40 per year domestic, \$19.70 per year foreign, single copy price \$0.70 domestic, \$1.64 foreign. There is a minimum charge of \$2.00 for each order of shelf-stocked issues. Address requests to: Director, National Climatic Center, Federal Building, Asheville, NC 28801, or telephone (704) 258-2850, Ext. 683 (FTS 672-0683).



# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

SEPTEMBER 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Early in the month Tropical Storm Norman, dissipating off the southern California Coast, brought heavy rain to California at an unexpected time and resulted in substantial losses to some crops. Subsequent surges of cold air blew into the West moving all the way to the East Coast by the end of September and causing some heavy snow in the Rockies. Average temperatures for September was warmer than normal in the East and colder west of the Rockies. The California Coast and Valley averaged warmer than normal.

The Southeast, Atlantic Coast, and parts of the Plains were notably dry. Several stations reported less than 0.1 inch for the month. Lynchburg, VA, recorded only 0.02.

The first three days of September were dominated by a high pressure system centered in the Northeast and extending southwestward. Rain areas extended along the East Coast, much of Texas, the Appalachians, and the Pacific Northwest.

The week of the 4th-10th featured Tropical Storm Norman, which dissipated as it approached the California Coast but not before dumping large amounts of rain on southern California. Heavy damage hit some crops because of the unusual timing of this rain. Concurrently, a low pressure system aloft, fed by tropical moisture, spread rain or snow throughout the West. Meanwhile, the high pressure in the East caused warm, moist air to flow northward from the Gulf of Mexico bringing moderate to heavy rain to southern and central Texas and lighter amounts northward to eastern Kansas. A minor storm of tropical origin triggered heavy showers in Florida. Rain and showers were welcome to northern New England.

Cold air moved into the western United States and New England, but the northern Plains baked under a heat wave. Some temperatures exceeded 100° early in the week.

From the 11th to the 17th, heavy rain fell from southeastern Texas to the southern Great Lakes and

from the central Plains to the western Lakes. Lesser amounts extended eastward from the Lakes through the Northeast. The cold air from the Northwest moved slowly to western Texas and through the northern States to New England. The moist Gulf air continued to pour northward causing thunderstorms and rain a-long and ahead of the eastward moving cold air. Average temperatures for the week ranged colder than normal from New Mexico to the western Great Lakes and westward. Temperatures held warmer east of this line. Some averages in the central Plains rose as much as 12° above normal.

During the third week of September, another surge of cold air edged into the western United States and brought heavy snow to parts of Montana and other high areas of the Rockies. By the end of the week the cold air had moved through the entire Nation except Florida. Warming began at the end of the week in central California and the Southwest, but the western Plateau remained much colder than normal. The heaviest rain fell along the leading edge of the latest push of cold air from western Texas to southern Wisconsin. Smaller amounts fell along the front as it moved eastward.

Rapid warming covered the West during September's last week. A mass of nearly stagnant air was free of clouds and allowed heating from the sun, while air drifting from the Plateau into the valleys warmed as it descended. Satellite pictures revealed moisture flowing across Mexico into southeastern New Mexico, western Texas, and Oklahoma. Heavy rain drenched those areas and severe flooding occurred along the Rio Grande River. Light to moderate rain fell from the Mississippi River eastward. Temperatures in the East were near or slightly below normal.

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

SEPTEMBER 1978

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	5 Stations	100	21+	3 Stations	51	25+	Bessemer 3 WSW	3.29	Castleton	.00
Alaska	Eagle	79	5	Chandalar Lake	2	29	Little Port Walter	32.09	2 Stations	.00
Arizona	Bullhead City	112	4	Sunset Crater Natl Mon	12	21	Santa Rita Exp Range	2.76	18 Stations	.00
Arkansas	2 Stations	101	4	Mammoth Spring	45	27+	Crystal Valley	15.71	Wagonmtn	.26
California	Death Valley	113	2	White Mountain 2	1	19	Lodgepole	7.48	20 Stations	.00
Colorado	Uravan	104	5	Spicer	4	20	Wolf Creek Pass 1 E	3.22	11 Stations	.00
Connecticut	Hartford WSO AP	88	21	Coventry	25	27	Mount Carmel	5.14	West Thompson Dam	1.62
Delaware	2 Stations	91	19+	2 Stations	36	29+	Wilmington WSO AP	2.18	Lewes 1 SW	.53
Florida	2 Stations	98	4+	Jasper	58	28	Royal Palm Ranger Station	12.63	2 Stations	.25
Georgia	Hawkinsville	101	10+	Clayton 1 SSW	46	27	Sapelo Island	10.50	2 Stations	.00
Hawaii	Keawakapu Beach 260.2	96	2+	Mauna Loa Slope Obs	32	19	Puohokamoa 2 343 Maui	18.09	13 Stations	.00
Idaho	Swan Falls Power House	100	3+	Island Park Dam	15	20	Island Park Dam	3.62	2 Stations	.50
Illinois	3 Stations	99	9+	Stockton	33	28	De Kalb	9.33	Carbondale Sewage Plant	.16
Indiana	2 Stations	99	10+	Angola	33	26	Goshen College	4.10	Kokomo 7 SE	.17
Iowa	6 Stations	99	8+	3 Stations	32	28	Harlan	10.74	Lake Park	.99
Kansas	Aetna 2 S	108	16	3 Stations	29	21	Highland	12.36	4 Stations	.00
Kentucky	Louisville	97	20	3 Stations	37	30+	Paducah FAA AP	3.53	Manchester 4 SE	.00
Louisiana	5 Stations	96	23+	Logansport 4 ENE	53	25	Reserve	12.41	2 Stations	.25
Maine	2 Stations	92	21	4 Stations	23	30+	Vanceboro 2	3.98	East Hiram	.09
Maryland	2 Stations	93	19+	Oakland 1 SE	28	29	Frederick 3 E	3.79	Patuxent River	.09
Massachusetts	Chester 2	93	21	Chester 2	21	27	Great Barrington AP	2.96	2 Stations	.29
Michigan	Jackson FAA AP	100	8	Gaylord 2 W	22	28	Mott Island Exp Farm	12.54	Mott Island Isle Royal	1.49
Minnesota	2 Stations	103	7	Tower 3 S	22	25	Beaver	8.75	2 Stations	.78
Mississippi	Fulton 3 W	100	8	3 Stations	48	25+	Winona 5 E	6.40	Hickory 1 E	.52
Missouri	Festus 2 NW	102	19	Arcadia	35	29+	King City	10.32	New Madrid	.15
Montana	4 Stations	105	5+	2 Stations	11	20+	Shonkin 7 S	9.09	Saint Regis Ranger Sta	.75
Nebraska	Chadron FAA AP	104	4	Agate 3 E	22	30+	Pawnee City	8.03	Stockville	.00
Nevada	Sunrise Manr Las Vegas	109	3	Glenbrook	16	19	Arthur 4 NW	3.84	Las Vegas WSO AP	.03
New Hampshire	Concord WSO AP	93	21	Mount Washington	17	26+	Mount Washington	5.67	Greenland	.14
New Jersey	3 Stations	90	18+	3 Stations	31	30+	Canoe Brook	5.82	Cape May 2 NW	.17
New Mexico	2 Stations	99	17+	Tierra Amarilla 4 NNW	19	21	Carlsbad Caverns	12.37	Carrizozo Hanes	.00
New York	2 Stations	93	7+	Old Forge	20	26	Westfield 3 SW	7.85	Binghamton WSO AP	1.16
North Carolina	Dunn 4 NW	99	18	Grandfather Mountain	39	29	Grandfather Mountain	4.97	Elizabeth City FAA AP	.07
North Dakota	2 Stations	108	6+	Moffit	24	21	Lisbon	6.77	Fort Yates	.42
Ohio	2 Stations	98	9+	Fredericktown 4 S	26	30	Youngstown WSO AP	4.23	Lancaster 2 NW	.05
Oklahoma	4 Stations	106	16+	Kenton	34	21	Hammon 1 NNE	6.72	2 Stations	.00
Oregon	4 Stations	96	26+	2 Stations	19	20+	Nehalem 9 NE	11.31	Boardman	.14
Pennsylvania	Farrell-Sharon	94	8	Austinburg 2 W	21	29	Cedar Run	6.18	Gettysburg	.46
Puerto Rico	2 Stations	96	17+	2 Stations	58	17+	San Sebastian 2 WNW	18.54	Ponce City	.10
Rhode Island	Newport	83	5	Kingston	30	27	Block Island WSO AP	3.70	North Foster 1 E	1.74
South Carolina	2 Stations	99	9+	Manning 1 S	44	28	Charleston WSO CI	7.53	Kingstree 1 SE	.17
South Dakota	Belle Fourche	107	6	Ardmore 2 N	21	21	Wentworth 2 WNW	2.96	2 Stations	.00
Tennessee	2 Stations	98	20+	2 Stations	42	24	Gatlinburg 2 SW	5.16	Cheatham Lock and Dam	.1
Texas	Presidio	107	12	2 Stations	37	22+	Victoria WSO AP	19.05	Hartley	.20
Utah	2 Stations	104	5	Woodruff	8	19	Silver Lake Brighton	4.21	Price Warehouses	.7
Vermont	Vernon	89	22	2 Stations	21	26	Mount Mansfield	5.23	South Hero	1.25
Virginia	Tye River 1 SE	98	20+	2 Stations	30	29	Hopewell	5.91	Lynchburg WSO AP	.02
Virgin Islands	Annaly	94	11	Alex Hamilton Field FAA	67	6+	Cruz Bay	8.69	East End	2.55
Washington	2 Stations	93	4+	Rainier Paradise RS	23	17	Clearwater	16.89	Richland	.09
West Virginia	Ripley	96	21+	Canaan Valley	23	29	Hico 1 SE	5.20	Seneca State Forest	.16
Wisconsin	Mondovi	101	7	Jump River 5 E	25	25	Horicon	8.80	Port Wing 4 SW	1.76
Wyoming	Colony	108	6	Darwin Ranch	7	20	Alta 1 NNW	3.80	Bates Creek 2	.03

## CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1978

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation					Wind		No. of days		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Station	Sea level	Average maximum		Average minimum		Average dew point		Average relative humidity	No. of days			Resultant speed	Resultant direction	Speed		Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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# CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1978

State and Station	Elevation (ground) m	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)	Sky cover (tenths)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		Station Q	mb	mb	Date		Departure from normal	No. of days		Average relative humidity	Total		Greatest in 24 hours	With thunderstorms	Snow, ice pellets	Resultant				Fastest mile (1.6 kilometers)	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
					Highest	Lowest		Max 32° or above	Min 0° or lower		Average dew point	mm				mm	mm					mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm

## METRIC UNITS

SEPTEMBER 1978

- 7 -



## CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1978

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind		No. of days		Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		Station Q	Sea level	Average maximum	Average minimum	Departure from normal	Highest	Lowest	Date	Max 22.2 °C or above	Min 0 °C or lower	Average relative humidity	Precipitation				Speed (1.6 kilometers)	Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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## CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1978

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind		No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Fastest mile (1.6 kilometers)				Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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## METRIC UNITS

- 10 -

[illegible]

## METRIC UNITS

SEPTEMBER 1978

- 11 -



## HEATING DEGREE DAYS

(Base 65°F.)

SEPTEMBER 1978

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA	0	0	A	ALABAMA	173	216	139	NEBRASKA	64	67	113	TENNESSEE	0	0	37
ARMINGHAM	0	0	11	BOISE	139	167	141	GRAND ISLAND	62	67	83	BRISTOL	0	0	9
HUNTSVILLE	0	0	0	LEWISTON	241	310	242	LINCOLN	49	59	140	CHATTANOOGA	0	0	13
MOBILE	0	0	0	POCATELLO	0	0	11	MURFOLK	99	128	156	WINCHESTER	0	0	1
MONTGOMERY	0	0	0	ILLINOIS	0	0	11	NORTH PLATTE	39	39	77	MEMPHIS	0	0	1
ALASKA	400	746	1009	CAIRO U	59	64	94	OMAHA	52	55	116	NASHVILLE	0	0	2
ANCHORAGE	333	742	772	CHICAGO UHARE	59	64	94	OMAHA (NORTH)	99	121	168	OAK RIDGE	0	0	2
ANNETTE	936	2582	2705	CHICAGO MIDWAY	49	53	78	SCOTT'S BLUFF	109	145	172	TEXAS	3	3	6
BARBER ISLAND	867	2477	2584	CHICAGO WIDWAY	59	64	94	VALENTINE	267	337	339	ABILENE	33	33	20
BETHLEHEM	805	1232	1313	DEQUA	66	75	121	NEVADA	336	482	350	AMARILLO	0	0	0
BETTES	574	925	1387	ROCKFORD	36	36	54	ELKO	1	1	0	BROWNSVILLE	0	0	0
BIG DELTA	555	844	1145	SPRINGFIELD	10	10	34	ELY	234	317	235	CORPUS CHRISTI	0	0	0
COLD BAY	481	1277	1418	INDIANA	57	66	124	LAS VEGAS	241	315	247	HALLS RY WORTH	0	0	0
FATRAKANS	542	743	1070	EVANSVILLE	48	48	107	RENO	275	354	243	DEL RIO	16	16	0
GULKANA	559	848	1262	FORT WAYNE	41	41	73	KINNEBUCCA	811	1801	1774	GALVESTON	0	0	0
HOMER	522	1108	1325	INDIANAPOLIS	41	41	73	NEW HAMPSHIRE	20	20	7	HOUSTON INTERCON	0	0	0
JUNEAU	427	981	1094	INTE	63	81	104	CONCORD	68	76	73	LIBERTY	31	31	6
KING SALMON	514	1077	1204	LAUREL	34	34	55	MT WASHINGTON OBS	55	55	17	MIDLAND	36	36	0
KORTAK	417	1034	1101	LAUREL	18	18	32	NEW JERSEY	256	318	166	PORT ARTHUR	0	0	0
KOTZEBUE	450	1013	1935	AURINGTON	21	21	44	ATLANTIC CITY	208	268	233	SAN ANGELO	0	0	0
MC GRATH	585	985	1212	DES MOINES	20	20	44	ATLANTIC CITY U	154	171	183	SAN ANTONIO	0	0	0
NOME	543	1187	1439	MURKOC	4	4	35	NEW YORK U	75	80	29	VICTORIA	0	0	0
ST. PAUL ISLAND	518	1278	1759	SILOU CITY	142	169	189	GREENSBORO	136	142	161	WACO	0	0	0
TALKEETNA	515	979	1109	WATERLOO	282	490	512	NEW YORK LA GUARDIA	184	195	149	WICHITA FALLS	1	1	0
UNALAKLEET	491	1149	1321	KANSAS	262	432	489	NEW MEXICO	310	437	515	UTAH	206	228	121
VALDEZ	487	1149	1233	CONCORDIA	299	513	569	ALBUQUERQUE	179	233	280	MILFORD	144	156	110
YAKUTAT	209	243	118	PODGE CITY	84	171	201	CLAYTON	213	273	331	SALT LAKE CITY	295	382	260
ARIZONA	227	333	374	GODOLAND	229	300	174	ROSWELL	58	67	126	VERMONT	15	15	46
FLAGSTAFF	3	0	0	TOPEKA	212	323	450	NEW YORK	21	21	37	VIRGINIA	23	23	33
PHOENIX	0	0	0	WICHITA	57	63	91	ALBANY	43	52	121	LYNCHBURG	0	0	0
TUCSON	37	37	19	KENTUCKY	73	90	116	BRINGHAMTON	38	38	84	NEW YORK	16	16	21
YUMA	0	0	0	COVINGTON	81	114	197	RUFFALO	63	81	89	NEW YORK KENNEDY	29	29	32
ARKANSAS	0	0	0	LOXINGTON	124	161	149	NEW YORK U	74	96	122	ROANOKE	21	21	15
FORT SMITH	0	0	0	LOUISVILLE	105	142	169	NEW YORK KENNEDY	129	166	216	WASHINGTON	240	373	390
LITTLE ROCK	0	0	0	LOUISIANA	142	169	189	ROCHESTER	146	194	116	OLYMPIA	206	296	635
NO. LITTLE ROCK	0	0	0	RATON ROUGE	220	341	374	SYRACUSE	134	189	223	QUILAYUTE	170	284	269
CALIFORNIA	0	0	0	LAKE CHARLES	236	367	322	NORTH CAROLINA	125	146	99	SEATTLE-TACOMA	180	266	331
BAKERSFIELD	0	0	0	NEW ORLEANS	244	336	394	CAPE HATTERAS R	125	146	99	SPOKANE	232	386	264
RISHOP	93	44	49	SHREVEPORT	204	290	244	ASHEVILLE	125	146	99	STAMPEDE PASS R	563	1189	988
BLUE CANYON	247	494	193	MAINE	233	345	304	CAPE HATTERAS R	125	146	99	WALLA WALLA U	83	105	85
BUREKA U	215	730	770	CARIBOU	236	367	322	CHARLOTTE	310	437	515	YAKIMA	184	243	204
FRESNO	6	6	7	PORTLAND	262	432	489	GREENSBORO	179	233	280	WEST VIRGINIA	58	75	145
LONG BEACH	0	0	0	PORTLAND	299	513	569	RALEIGH	213	273	331	RECKLEY	18	18	46
LOS ANGELES	0	0	0	MARYLAND	212	323	450	WILMINGTON	58	67	126	CHARLESTON	75	94	195
LOS ANGELES U	0	0	0	BALTIMORE	57	63	91	ALBANY	43	52	121	HUNTINGTON	15	15	46
MT SHASTA R	298	441	246	MASSACHUSETTS	73	90	116	AKRON	21	21	37	WISCONSIN	152	205	267
DAKLAN	12	41	213	BLUE HILL OBS R	124	161	149	CINCINNATI	43	52	121	GREEN BAY	78	84	197
RED BLUFF	1	1	0	ROSTON	105	142	169	CLEVELAND	38	38	84	LA CROSSE	130	171	226
SACRAMENTO	11	11	0	WORCESTER	142	169	189	COLUMBUS	63	81	89	MADISON	76	102	191
SANDROG R	141	144	50	MICHIGAN	220	341	374	DAYTON	74	96	122	WYOMING	212	289	259
SAN DIEGO	32	278	243	ALPENA	220	341	374	MANSFIELD	129	166	216	CHEYENNE	226	306	248
SAN FRANCISCO	43	376	481	DETROIT	142	169	189	TOLEDO	377	701	391	LANDER	232	332	304
SAN FRANCISCO U	54	211	308	FLINT	262	432	489	OKLAHOMA CITY	94	103	91	SHERIDAN	232	332	304
SANTA MARIA	3	3	0	GRAND RAPIDS	299	513	569	TULSA	125	146	99	FLORIDA	0	0	0
STOCKTON	0	0	0	WRIGHTMAN LAKE	220	341	374	ASTORIA	180	199	121	APALACHICOLA U	0	0	0
COLORADO	278	447	444	LANSING	236	367	322	HURONS U	146	194	116	DAYTONA BEACH	0	0	0
ALAMOSA	119	146	177	MARQUETTE U	204	290	244	KEFORD	180	199	121	FORT MYERS	0	0	0
COLORADO SPRINGS	96	118	129	MUSKEGON	233	345	304	PENDLETON	146	194	116	JACKSONVILLE	0	0	0
DENVER	95	161	60	SAULT STE MARIE	233	345	304	PORTLAND	134	189	223	KEY WEST	0	0	0
GRAND JUNCTION	49	45	55	MINNESOTA	204	290	244	SALEM	129	166	216	MIAMI	0	0	0
PUEBLO	49	45	55	DULUTH	233	345	304	SEXTON SUMMIT R	377	701	391	ORLANDO	0	0	0
CONNECTICUT	92	76	42	INTERNATIONAL FALLS	236	367	322	PENNSYLVANIA	94	103	91	PENSACOLA	0	0	0
BRIDGEPORT	209	243	118	WINCHESTER	204	290	244	ALLENTOWN	125	146	99	TALLAHASSEE	0	0	0
HARTFORD	60	46	32	ST CLAIR	233	345	304	ERIE	180	196	103	TAMPA	0	0	0
DELAWARE	0	0	0	MISSISSIPPI	204	290	244	HARRISBURG	146	194	116	WEST PALM BEACH	0	0	0
WILMINGTON	60	46	32	JACKSON	233	345	304	PHILADELPHIA	125	146	99	GEORGIA	1	1	4
DIST OF COLUMBIA	58	58	43	MERIDIAN	236	367	322	PITTSBURGH	180	199	121	ATLANTA	0	0	0
WASHINGTON DULLES	9	9	14	MISSOURI	204	290	244	SCRANTON	146	194	116	AUGUSTA	0	0	0
WASHINGTON NATIONAL	0	0	0	COLUMBIA REGIONAL	21	21	42	WILLIAMSPORT	125	146	99	COLUMBUS	0	0	0
FLORIDA	0	0	0	KANSAS CITY	28	28	50	BLICK ISLAND	180	196	103	MADON	0	0	11
APALACHICOLA U	0	0	0	ST JOSEPH	35	37	54	PROVIDENCE	125	146	99	ROME	0	0	0
DAYTONA BEACH	0	0	0	ST LOUIS	24	24	45	SOUTH CAROLINA	125	146	99	SAVANNAH	0	0	0
FORT MYERS	0	0	0	SPRINGFIELD	19	19	41	CHARLESTON U	0	0	0				
JACKSONVILLE	0	0	0	MONTANA	204	290	244	CHARLESTON U	0	0	0				
KEY WEST	0	0	0	ATLINGS	233	345	304	COLUMBIA	0	0	0				
MIAMI	0	0	0	GLASGOW	236	367	322	GRNVILLE-SPRTNBAG	6	6	9				
ORLANDO	0	0	0	GREAT FALLS	204	290	244	SOUTH DAKOTA	146	194	116				
PENSACOLA	0	0	0	MAVRE	218	306	322	ABERDEEN	125	146	99				
TALLAHASSEE	0	0	0	HELEVA	244	336	394	HURON	180	196	103				
TAMPA	0	0	0	KALISPELL	331	520	558	RAPID CITY	111	148	221				
WEST PALM BEACH	0	0	0	MILES CITY	167	205	242	SILOUX FALLS	124	133	193				
GEORGIA	1	1	4	MISSOULA	308	485	411								
ATLANTA	0	0	0												
AUGUSTA	0	0	0												
COLUMBUS	0	0	0												
MADON	0	0	11												
ROME	0	0	0												
SAVANNAH	0	0	0												

## COOLING DEGREE DAYS

(Base 65°F.)

SEPTEMBER 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM	365	1928	1844	HILO	341	2780	2296	GRAND ISLAND	169	1157	1025	CHARLESTON	378	2172	1960
HUNTSVILLE	298	1755	1736	HONOLULU	473	3463	3173	LINCOLN	193	1172	1133	CHARLESTON U	406	2368	2182
MOBILE	507	2609	2391	KAMULU	483	3504	2806	NORFOLK	176	1067	915	COLUMBIA	376	1918	1995
MONTGOMERY	430	2257	2114	LIHUE	642	2994	2799	NORTH PLATTE	117	838	802	GRNVILLE-SPRNBGR	282	1540	1530
ALASKA				IDAH0				OMAHA	231	1316	1154	SOUTH DAKOTA			
ANCHORAGE	0	8	0	BOISE	72	597	708	OMAHA (NORTH)	202	1126	935	ABERDEEN	152	658	886
ANNETT	0	6	14	LEWISTON	81	676	657	SCOTT'S BLUFF	141	869	866	HURON	173	736	711
BARROW	0	0	0	POCATELLO	41	369	427	VALENTINE	148	790	731	RAPID CITY	154	669	652
BARTER ISLAND	0	0	0	ILLINOIS				NEVADA				SIOUX FALLS	163	743	713
BETHEL	0	0	0	CAIRO U	315	1956	1751	ELKO	21	395	342	TENNESSEE			
BEYTLER	0	21	17	CHICAGO O HARE	181	849	682	ELY	9	205	207	BRISTOL	224	1088	1076
BIG DELTA	0	48	34	CHICAGO MIDWAY	213	981	906	LAS VEGAS	485	9024	2801	CHATTANOOGA	325	1826	1584
COLD BAY	0	0	0	HOLINE	195	1040	877	RENO	19	340	329	KNOXVILLE	302	1604	1521
FAIRBANKS	0	97	52	PEORIA	221	1093	951	WINNEHUCCA	18	485	407	MEMPHIS	311	3194	3074
GULF BAY	0	43	9	ROCKFORD	160	839	703	NEW HAMPSHIRE				NASHVILLE	322	1792	1641
HOMER	0	0	0	SPRINGFIELD	222	1243	1095	CONCORD	8	521	349	OAK RIDGE	240	1243	1333
JUNEAU	0	0	0	INDIANA				MT WASHINGTON OBS	0	0	0	TEXAS			
KING SALMON	0	0	0	EVANSVILLE	229	1541	1329	NEW JERSEY				ABILENE	379	2858	2336
KODIAK	0	0	0	FORT WAYNE	192	897	739	ATLANTIC CITY U	74	833	864	AMARILLO	209	1828	1397
KOTZBUE	0	1	0	INDIANAPOLIS	203	1249	961	ATLANTIC CITY U	69	633	825	AUSTIN	427	2449	2678
MC GRATH	0	2	14	SOUTH BEND	179	867	687	NEWARK	105	1073	1013	BROWNSVILLE	524	3526	3332
NOME	0	0	0	IOWA				TRENTON U	99	797	958	CORPUS CHRISTI	311	3194	3074
ST. PAUL ISLAND	0	0	0	BURLINGTON	189	1005	974	NEW MEXICO				DALLAS FT WORTH	462	2773	2435
TALKEETNA	0	8	8	DES MOINES	221	1223	910	ALBUQUERQUE	151	1371	1309	DEL RIO	415	3138	3115
UNALASKA	0	0	0	DUBUQUE	191	712	596	CLAYTON	100	904	759	EL PASO	238	2204	2037
VALDEZ	0	0	0	SIOUX CITY	189	928	923	ROSWELL	187	1954	1533	GALVESTON	499	2747	2664
YAKUTAT	0	0	0	WATERLOO	149	833	665	NEW YORK				HOUSTON INTERCON	437	2583	2623
ARIZONA				KANSAS				ALBANY	16	456	374	LIBERTY	248	1980	1609
FLAGSTAFF	2	152	140	CONCORDIA	235	1432	1275	BINGHAMTON	14	459	368	MIDLAND	233	2040	2140
PHOENIX	644	3863	3242	ODDGE CITY	282	1713	1384	BUFFALO	35	540	437	PORT ARTHUR	510	2991	2565
TUCSON	483	2863	2601	GODOLAND	137	936	916	NEW YORK U	81	1016	1054	SAN ANGELO	202	2448	2348
WINSTON	158	1296	1189	TOPEKA	277	1426	1331	NEW YORK KENNEDY	119	1037	853	SAN ANTONIO	410	2750	2765
YUMA	630	3861	3783	WICHITA	364	2019	1629	NEW YORK LA GUARDIA	86	914	1038	VICTORIA	476	2886	2825
ARKANSAS				KENTUCKY				ROCHESTER	86	741	531	WACO	496	3074	2669
FORT SMITH	419	2208	1943	COVINGTON	200	1048	1063	SYRACUSE	36	623	551	WICHITA FALLS	449	2693	2482
LITTLE ROCK	397	2311	1862	LEXINGTON	202	1186	1174	NORTH CAROLINA				UTAH			
NO. LITTLE ROCK	323	2097	1876	LOUISVILLE	270	1531	1241	ASHEVILLE	168	969	857	MILFORD	54	358	688
CALIFORNIA				LOUISIANA				CAPE HATTERAS R	163	1601	1461	SALT LAKE CITY	120	1018	916
BAKERSFIELD	358	2408	2059	BATON ROUGE	424	2555	2400	CHARLOTTE	287	1681	1546	VERMONT			
BISHOP	64	918	1022	LAKE CHARLES	407	2503	2308	GREENSBORO	216	1318	1312	BURLINGTON	6	489	396
BLUE CANYON	21	347	902	NEW ORLEANS	489	2791	2474	RALEIGH	273	1637	1357	VIRGINIA			
BUREKA U	0	0	0	SHREVEPORT	391	2465	2376	WILMINGTON	339	2004	1859	LYNCHBURG	212	1240	1083
FRESNO	250	1842	1605	MAINE				NORTH DAKOTA				NORFOLK	257	1487	1403
LONG BEACH	264	1145	855	CARIBOU	1	264	128	BISHARCK	188	475	487	RICHMOND	263	1557	1326
LOS ANGELES	266	708	509	PORTLAND	20	336	232	FARGO	146	604	473	ROANOKE	228	1295	1018
LOS ANGELES U	338	1303	1001	MARYLAND				WILLISTON	73	421	422	WALLOPS ISLAND	179	1050	1081
MT SHASTA R	0	252	286	BALTIMORE	182	1242	1094	OHIO				WASHINGTON			
OAKLAND	89	193	114	MASSACHUSETTS				AKRON	199	767	628	OLYMPIA	0	146	101
RED BLUFF	270	1568	1822	BOSTON	23	502	437	CINCINNATI ABSE DB	224	1175	1166	QUILLAYUTE	0	42	8
SACRAMENTO	157	1048	1111	WORCESTER	48	668	661	CLEVELAND	177	893	806	SEATTLE	0	161	183
SANDBERG R	132	767	780	MICHIGAN				COLUMBUS	188	968	801	SEATTLE-TACOMA	0	210	129
SAN DIEGO	276	1009	631	ALPENA	26	205	208	DAYTON	184	945	923	SPOKANE	9	326	388
SAN FRANCISCO	62	111	95	DETROIT	180	893	733	HANOVERFIELD	174	805	808	STAMPEDE PASS R	0	60	16
SAN FRANCISCO U	65	111	23	DETROIT METRO	134	760	646	TOLEDO	170	740	678	WALLA WALLA U	38	754	856
SANTA MARIA	59	96	67	FLINT	108	591	482	YOUNGSTOWN	117	574	518	YAKIMA	5	412	479
STOCKTON	218	1462	1217	GRAND RAPIDS	90	588	569	OKLAHOMA				WEST INDIES			
COLORADO				HOUGHTON LAKE	34	308	230	OKLAHOMA CITY	490	2324	1808	SAN JUAN P.R.	375	4486	3721
ALAMOSA	0	47	88	LANSING	115	609	529	TULSA	476	2442	1871	WEST VIRGINIA			
COLORADO SPRINGS	59	588	455	MARQUETTE U	38	200	216	OREGON				BECKLEY	96	552	464
DENVER	103	746	620	MUSKEGON	79	405	403	ASTORIA	0	14	13	CHARLESTON	205	1109	1026
GRAND JUNCTION	123	1134	1129	SAULT STE MARIE	5	123	139	BURNS U	5	277	289	ELKINS	82	498	389
PUEBLO	116	1029	971	MINNESOTA				EUGENE	10	235	239	HUNTINGTON	234	1303	1078
CONNECTICUT				DULUTH	39	224	176	MEDFORD	11	557	662	PARKERSBURG U	183	1014	1025
BRIDGEPORT	76	770	729	INTERNATIONAL FALLS	34	219	176	PENDLETON	16	528	656	WISCONSIN			
HARTFORD	26	657	586	ROCHESTER	164	811	378	PORTLAND	18	343	300	GREEN BAY	80	640	386
DELAWARE				ST CLOUD	111	559	407	SALEM	16	358	232	LA CROSSE	189	819	683
WILMINGTON	117	1009	980	MISSISSIPPI	107	487	426	SEXTON SUMMIT R	8	222	137	MADISON	102	589	494
DIST.OF COLUMBIA				JACKSON	409	2306	2190	PACIFIC AREA				MILWAUKEE	109	548	444
WASHINGTON DULLES	183	1169	931	MERIDIAN	390	2066	2119	GUAM TAGUAC R	449	3879	3735	WYOMING			
WASHINGTON NATIONAL	274	1707	1388	COLUMBIA REGIONAL	305	1504	1239	JOHNSTON	489	4046	3782	CASPER	74	442	488
FLORIDA				KANSAS CITY	295	1518	1235	KORD R	484	4577	4472	CHEYENNE	44	297	327
APPALACHICOLA U	428	2229	2406	ST JOSEPH	261	1494	1298	KHAJALEIN	536	4672	4609	LANDER	64	408	383
DAYTONA BEACH	477	2728	2512	ST LOUIS	276	1501	1434	MAJURO	506	4438	4414	SHERIDAN	62	290	446
FORT MYERS	530	3014	3076	SPRINGFIELD	293	1543	1341	PAGO PAGO	443	4196	3967				
JACKSONVILLE	390	2333	2340	MONTANA				PONAPE R	484	4528	4238				
KEY WEST	583	3654	3912	BILLINGS	78	429	498	TRUK MOEN ISLAND	517	4712	4395				
MIAMI	513	3183	3253	GLASGOW	48	220	438	WAKE	877	4227	4038				
ORLANDO	508	3008	2758	GREAT FALLS	60	352	332	YAP R	462	4406	4417				
PENSACOLA	517	3035	2472	HAYRE	94	352	395	PENNSYLVANIA							
TALLAHASSEE	437	2209	2368	HELENA	97	271	256	ALLENTOWN	76	848	766				
TAMPA	500	2911	2876	KALISPELL	8	105	117	ERIE	48	534	373				
WEST PALM BEACH	477	3012	3072	MILES CITY	114	661	746	HARRISBURG	193	1014	1017				
GEORGIA				MISSOULA	19	185	188	PHILADELPHIA	193	1239	1091				
ATHENS	306	1803	1664					PITTSBURGH	122	836	640				
ATLANTA	345	1728	1932					SCRANTON	2	540	601				
AUGUSTA	324	1978	1914					WILLIAMSPORT	83	827	692				
COLUMBUS	433	2326	2044												
MACON	405	2274	2181												
ROME	322	1810	1569												
SAVANNAH	403	2379	2170												

# STORM SUMMARY

DECEMBER 1968

STATE	TORNADOES					HAILSTORMS			WINDSTORMS				LIGHTNING				HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				ALL OTHER						
	NUMBER	DAYS	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE			
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS										
Alabama												3				4												3			
Alaska																													4		
Arizona	*																														
Arkansas																															
California										6						2										10	72			C	
Colorado																															
Connecticut	*																														
Delaware	*																														
Florida		3	3		4							4		1																	
Georgia	*																														
Hawaii	*																														
Idaho												4																			
Illinois											2	6	6			4														6	
Indiana	*																														
Iowa		3	1	6	46	6		5	6			6	5																		
Kansas		2	2			5		5	3	1		6			2	6															
Kentucky	*																														
Louisiana		2	2		2	5																								6	
Maine	*																														
Maryland & DC																3															
Massachusetts														1	16																
Michigan												5			1	5														C	
Minnesota								4	5			6	4			5															
Mississippi										2																			3	3	
Missouri								3	3			4		1		4															
Montana								5	5		2	5	5																		
Nebraska		2	2		5			5	6		3	6	6		1	6	3														
Nevada																															
New Hampshire	*																														
New Jersey	*																														
New Mexico																															
New York												4			5	5															
North Carolina																															
North Dakota		1	1					3				5	4			1	4	3											4		
Ohio		2	1		2	5										3	3												1	C	
Oklahoma		1	1								2	4				4	5														
Oregon	*																														
Pacific	*																														
Pennsylvania												5				4	4														
Puerto Rico	*																														
Rhode Island	*																														
South Carolina												3				2													2		
South Dakota												5																			
Tennessee												4	3																		
Texas		6	3		3											3										1	2				
Utah																															
Vermont	*																														
Virginia																4													3		
Virgin Islands	*																														
Washington	*																														
West Virginia	*																														
Wisconsin												5	2			5														5	
Wyoming												5		C																	



## Average monthly values

SEPTEMBER 1978

ALBUQUERQUE, NM 1001 MB												ALBUQUERQUE, NM R01 MB												ANCHORAGE, AK 1001 MB												ANNETTE, AK 1007 MB																																																																																																																																																																																																																																																																																																																																																																																																																				
Standard pressure surface mb		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed m/s		Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed m/s		Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed m/s		Direction tens of deg																																																																																																																																																																																																																																																																																																																																																																																																																		
570	30	86	10.7	6.3	21	-6	30	1.619	14.7	7.1	11	1.4	30	1.095	16.3	12.5	4.2	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
10	2	168	14.3	7.8	21	3													16	107	8.8	4.9	16	1.5	25	111	10.4	7.3	12	3.2	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
950	30	56	11.6	7.2	29	3													30	476	7.8	3.0	13	6	30	518	8.3	4.7	14	6.1	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
910	30	1.034	10.1	4.7	21	5.9													30	921	5.4	5.12	2.0	30	963	5.6	2.0	16	7.2	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
870	30	1.518	8.9	-1.9	29	8.1													30	1.365	5.1	1.7	12	2.4	30	1.428	2.7	-0.17	7.2	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
830	30	2.002	7.7	-3.2	29	8.1													30	1.872	-7.8	-5.1	14	3.8	30	1.917	-7.8	-4.9	8	5.3	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
790	30	2.485	6.4	-6.7	29	11.8	1.5	2.032	14.7	5.1	18	2.2	30	2.576	12.6	2.3	21	4.7	10	2.346	-3.5	-0.8	15	5.0	30	2.431	-3.0	-0.4	19	6.0	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
750	30	3.114	4.4	-10.0	29	13.2	3.0	3.149	8.3	5.5	23	3.4	30	3.151	8.6	-2.0	20	4.5	2.928	-6.4	-11.8	16	5.6	30	2.974	-6.2	-12.6	19	6.8	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
690	30	3.714	1.3	-13.7	29	15.5	3.0	3.757	4.0	-4.0	24	2.3	30	3.760	4.7	-6.5	20	3.9	3.505	-9.7	-15.1	16	6.3	30	3.551	-9.4	-13.8	19	6.7	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
650	30	4.354	-2.3	-17.6	24	16.9	3.0	4.403	-4	-10.4	22	3.1	30	4.408	5.5	-8.6	20	3.8	4.119	-13.3	-20.7	17	5.9	30	4.165	-13.3	-23.8	19	6.8	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
610	30	5.034	-5.3	-21.3	25	18.6	3.0	5.093	-4.5	-17.5	24	3.3	30	5.102	7.1	-14.6	21	4.6	3.776	-17.4	-24.8	14	6.1	30	4.682	-17.6	-28.1	18	5.9	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
570	30	5.778	-14.8	-26.7	24	19.9	3.0	5.834	-8.4	-24.7	22	3.4	30	5.850	-17.9	-20.7	22	4.1	3.548	-22.3	-30.0	18	4.9	30	5.528	-22.7	-32.5	19	5.8	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
530	30	6.586	-16.1	-30.9	28	19.7	3.0	6.688	-13.6	-27.7	23	3.6	30	6.686	-13.4	-26.3	23	4.6	3.320	-25.0	-33.4	17	5.1	30	6.293	-28.2	-37.7	19	6.8	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
490	30	7.456	-22.7	-36.5	28	1.0	28	7.530	-10.0	-35.1	24	7.5	30	7.548	-19.3	-32.3	24	6.2	3.708	-33.7	-42.8	18	5.7	30	7.127	-34.5	-43.3	21	7.8	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
450	30	8.424	-36.1	-43.4	28	2.6	29	8.508	-27.2	-40.1	24	7.7	30	8.529	-26.6	-37.5	24	8.3	8.506	-41.4	-43.4	17	6.0	30	8.050	-41.3	-46.3	21	7.8	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																															
410	30	9.489	-38.9	-49.5	29	23.0	29	9.588	-46.8	-48.2	24	13.1	30	9.621	-37.7	-46.2	25	1.3	2.8	40.35	-51.1	17	7.2	30	9.079	-49	21	5.5	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																																
240	30	10.725	-48.1		29	24.5	29	10.842	-44.5		24	18.4	30	10.865	-44.2		25	16.9	28	10.219	-53.5		18	7.6	30	10.273	-50.6		22	5.4	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
200	30	12.166	-56.5		28	24.8	28	12.304	-54.4		24	22.2	30	12.352	-54.3		25	19.8	27	11.647	-53.5		21	4.3	30	11.728	-50.4		24	6.5	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
150	30	13.007	-59.3		28	25.8	28	13.150	-59.2		24	20.3	29	13.179	-59.3		26	19.2	27	12.520	-50.0		21	3.2	30	12.599	-50.6		23	7.0	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
110	30	13.973	-61.6		28	21.2	29	14.106	-61.6		24	17.9	29	14.133	-69.3		26	16.7	27	13.528	-50.0		21	3.3	30	13.603	-51.0		23	6.1	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
10	2	15.058	-64.5		28	19.3	29	15.194	-61.1		12	12.8	30	15.246	-68.5		25	12.7	27	15.000	-50.0		22	2.5	30	15.088	-57		23	7.0	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
10	2	16.474	-62.8		28	13.8	29	16.552	-68.6		25	5.6	29	16.589	-68.6		25	6.1	27	16.178	-50.3		22	2.6	30	16.234	-52.1		23	6.0	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
70	2	17.650	-63.9		29	9.8	28	17.896	-68.1		24	1.5	28	17.913	-67.1		30	1.1	27	17.633	-50.7		22	2.4	30	17.677	-52.5		23	6.0	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
70	2	18.684	-59.6		30	6.9	28	18.769	-64.3		10	2.1	28	18.723	-65.1		08	2.2	27	18.503	-51.1		22	2.7	30	18.540	-52.8		23	5.2	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
60	2	19.652	-57.8		29	4.7	28	19.659	-61.2		09	4.2	27	19.670	-62.3		09	4.2	27	19.505	-51.4		23	2.3	30	19.535	-52.9		24	6.6	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
50	2	20.812	-53.4		30	2.0	28	20.800	-56.3		09	4.7	27	20.808	-59.0		09	4.7	27	20.688	-51.8		22	2.5	30	20.708	-53.6		25	4.6	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
40	2	22.241	-51.3		27	1.6	28	22.210	-56.3		08	5.2	27	22.215	-64.5		08	4.8	27	22.135	-52.1		26	2.1	28	22.150	-53.9		26	4.9	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
30	2	24.105	-50.6		14	7.25	24	24.388	-52.6		09	6.4	27	24.457	-52.9		08	6.1	27	23.996	-52.2		29	3.8	23	24.005	-53.9		27	3.6	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
25	2	25.296	-49.5		12	1.3	24	25.229	-51.0		09	6.2	27	25.241	-50.3		09	6.2	27	25.176	-52.4		29	3.8	23	25.190	-53.4		29	3.1	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
20	2	26.756	-47.6		15	5.23	26	26.688	-49.5		08	5.9	25	26.702	-48.3		04	5.7	26	26.256	-52.2		29	4.3	19	26.643	-52.1		31	3.9	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
15	2	28.686	-45.3		11	1.4	19	28.578	-47.2		08	5.8	27	28.578	-46.3		08	5.5	25	28.492	-47.7		30	6.6	15	28.223	-50.0		29	3.8	30	45	9.1	5.7	16	48	30	37	10.2	8.2	11	2.5																																																																																																																																																																																																																																																																																																																																																																																																														
10	2	31.379	-42.2		08	6	14	31.279	-43.4		08	5.9	27	31.315	-43.0		08	7.0	19	31.165	-40.4		30	5.8	6	31.276	-45.5																																																																																																																																																																																																																																																																																																																																																																																																																													</

ATHENS, GA										BAPPOW, AR										BARTER ISLAND, AR										BETHEL, AR										BISMARCK, ND									
989 MR										1009 MR										1008 MR										1002 MR										953 MR									
SFC	30	246	19.1	18.2	14	1.3	29	8	5	-5	-5	05	1.7	30	15	2.1	-5	03	4	30	39	6.6	4.4	28	7	30	503	11.4	7.1	24	4	4																	
1000							26	98	7	-6	07	2.4	27	86	2.6	1.9	01	6	18	94	6.5	3.7	19	1.0																									
950	30	596	20.9	16.4	09	1.7	29	497	7	-2	09	2.0	30	492	4.0	1.2	04	3	30	473	6.1	1.6	23	4	22	557	11.8	6.2	23	4	9																		
900	30	1,064	18.8	14.2	12	1.5	29	932	2	-5	13	1.4	30	932	3.1	-3.5	24	1.5	30	914	3.3	-1.4	20	1.1	30	991	15.7	3.7	24	4	2																		
850	30	1,553	15.6	10.5	09	1.6	29	1,396	-1.4	-9.5	16	1.4	30	1,394	1.4	-5.7	23	2.3	30	1,375	3	-1.5	19	1.6	30	1,475	14.4	3	26	5	8																		
800	30	2,046	13.7	4.8	08	1.1	29	1,870	-11.2	-17	17	1.2	30	1,880	-8.7	-7	22	3.1	30	1,855	-2.2	-9.2	31	1.6	30	1,965	11.1	-11.2	26	6	6																		
750	30	2,606	9.9	-1.1	09	1.8	29	2,377	-6.5	-15.1	17	1.1	30	2,392	-4.3	-11.2	22	2.9	30	2,370	-2.6	-12.2	21	1.5	30	2,521	8.1	-4.9	26	7.3	3																		
700	30	3,176	6.5	-4.5	34	2.2	29	2,914	-9.1	-19.7	19	1.4	30	2,993	-7.4	-13.5	21	2.5	30	2,910	-7.8	-16.4	23	1.5	30	3,087	4.5	-7.9	26	8	2																		
650	30	3,781	3.5	-9.0	32	4.9	29	3,484	-12.3	-22.4	18	2.0	30	3,507	-10.6	-17.6	20	2.7	30	3,483	-10.5	-21.0	24	1.6	30	3,686	5	-10.5	25	10.1	1																		
600	30	4,426	-3.3	-14.7	36	8.8	29	4,091	-15.8	-26.7	20	2.5	30	4,119	-13.9	-22.9	21	2.9	30	4,095	-14.4	-23.5	25	1.6	30	4,324	-3.7	-14.3	26	12.2	2																		
550	30	5,118	-3.9	-20.8	35	6.29	4,742	-19.9	-30.7	21	3.0	30	4,775	-17.9	-28.1	22	4.0	30	4,750	-18.5	-30.0	23	1.5	30	5,006	-8.1	-18.8	26	13.7	2																			
500	30	5,864	-8.7	-24.4	32	9.29	5,483	-24.6	-35.1	21	3.7	30	5,481	-22.4	-34.6	22	4.5	30	5,454	-23.5	-35.8	24	2.3	30	5,705	-12.7	-24.1	26	12.2	2																			
450	30	6,673	-13.5	-27.3	31	2.0	29	6,202	-29.9	-39.4	21	4.6	29	6,250	-27.7	-38.2	23	5.6	30	6,216	-28.9	-40.0	23	2.2	30	6,465	-10.7	-30.6	26	14.9	2																		
400	30	7,558	-19.9	-33.0	32	2.5	28	7,025	-36.2	-46.7	22	5.3	29	7,086	-33.8	-43.0	22	6.0	30	7,048	-34.9	-46.1	22	3.7	29	7,408	-24.8	-36.3	26	15.0	2																		
350	30	8,539	-26.6	-39.5	31	5.2	28	7,942	-42.5	-52	22	6.8	29	8,011	-40.8	-44.6	22	7.1	30	7,969	-42.0	-43.7	23	3.3	28	8,366	-31.7	-43.4	26	15.5	2																		
300	30	9,630	-35.1	-47.0	31	6.8	27	8,959	-48.9	-59	22	6.1	28	9,036	-47.9	-57	23	8.9	30	8,994	-49.2	-53	23	3.3	28	9,435	-40.1	-49.0	27	15.7	2																		
250	30	10,876	-44.6	-61	31	9.5	26	10,152	-51.7	-61	21	5.6	28	10,235	-52.9	-63	23	10.2	30	10,178	-52.3	-63	24	3.7	28	10,656	-48.8	-57	27	18.4	2																		
200	30	12,337	-54.5	-70	31	11.9	25	11,609	-49.2	-62	21	5.2	27	11,679	-51.1	-63	23	6.9	30	11,630	-49.9	-55	25	5.2	28	12,099	-55.0	-67	27	20.1	2																		
150	30	13,182	-59.0	-75	31	11.0	24	12,451	-49.8	-63	21	4.7	27	12,551	-49.8	-63	23	5.7	30	12,505	-49.5	-55	25	4.0	27	12,951	-55.1	-67	27	20.5	2																		
100	30	14,137	-64.1	-80	32	9.9	25	13,501	-49.7	-62	22	4.0	27	13,560	-49.8	-62	24	3	30	13,515	-49.6	-56	24	4.5	27	13,923	-56	-67	27	17.9	2																		
125	30	15,242	-67.9	-85	33	6.9	25	14,698	-49.4	-62	22	4.1	26	14,755	-50.4	-62	25	3.8	29	14,711	-49.7	-56	24	3.4	26	15,069	-60.5	-75	27	16.4	2																		
100	30	16,577	-69.3	-90	33	3.4	24	16,159	-49.7	-61	23	3.9	26	16,210	-50.6	-62	24	3.7	28	16,171	-50.1	-57	24	3.0	26	16,458	-60.5	-78	28	12.3	3																		
70	30	17,915	-67.2	-95	02	3.6	24	17,617	-50.5	-62	24	2.7	25	17,675	-51.0	-62	26	3.2	28	17,627	-50.6	-56	25	2.3	24	17,854	-60.0	-78	29	9.5	2																		
80	30	18,727	-64.3	-93	05	3.2	24	18,487	-50.8	-62	24	2.6	24	18,543	-51.5	-62	26	2.9	28	18,498	-50.6	-56	25	2.1	24	18,690	-58.9	-79	29	6.7	2																		
60	30	19,676	-61.7	-90	08	3.3	23	19,409	-51.2	-62	26	2.9	24	19,544	-52.1	-62	27	2.7	28	19,501	-51.1	-57	24	1.8	23	19,660	-57.9	-79	29	4.7	2																		
40	30	20,615	-58.7	-87	21	2.0	23	20,383	-51.7	-61	27	2.7	23	20,488	-52.1	-61	29	2.6	27	20,488	-51.6	-56	23	1.6	23	20,613	-57.0	-78	29	4.6	2																		
20	30	22,331	-55.2	-84	09	5.0	19	22,118	-52.6	-62	28	4.9	24	22,186	-52.6	-62	29	3	26	22,155	-52.6	-56	24	1.6	23	22,229	-58.6	-78	33	4.3	2																		
20	30	24,380	-52.1	-82	08	6.9	16	23,967	-53.2	-62	30	4.4	24	24,020	-53.7	-62	30	3.6	26	24,002	-51.7	-57	27	1.6	22	24,071	-53.2	-62	33	3.4	2																		
25	29	25,265	-50.2	-80	09	7.4	10	25,162	-52.7	-62	31	2.5	25,274	-53.3	-62	31	3.5	26	25,186	-51.4	-57	27	2.2	22	25,251	-51.5	-62	33	2.2	2																			
15	28	26,733	-44.5	-77	09	7.9					27	26,642	-52.6	-62	31	3.9	23	26,646	-50.8	-57	30	3.1	21	26,704	-50.0	-78	30	4.5	2																				
15	24	28,627	-48.3	-75	08	7.0					21	28,496	-51.6	-62	31	4.5	8	28,492	-51.1	-57			21	28,597	-47.4	-74	29	4.5	2																				
10	25	31,344	-42.9	-72	08	8.7					17	31,243	-47.3	-62	31	4.0	8						18	31,299	-42.4	-78	28	5.2	2																				
7	5	33,377	-38.6	-69																			17	33,737	-38.6	-69	26	6.6	2																				
5																							16	36,057	-38.3	-69	26	8.4	2																				
4																							12	37,570	-32.9	-62	26	12.0	2																				
3																							6	39,611	-31.0																								

ROISE, IO 915 MB										ROTHSVILLE, LA 1015 MB										BROWNSVILLE, TX 1012 MB										BUFFALO, NY 993 MB										CAPE HATTERAS, NC 1017 MB									
SFC	30	871	11.9	3.1	1.4	1.2	30	1	25.3	23.5	06	1.2	30	7	24.6	22.8	13	5	30	218	13.0	10.8	19	1.0	30	4	22.2	19.6	03	2.7																			
10MB							30	132	25.9	22.9	09	2.1	30	109	25.3	23.3	13	1.6	30	155	22.5	18.6	02	30	155	22.5	18.6	02	3.2																				
950	30						30	542	25.8	20.1	11	3.2	30	560	22.9	20.6	14	5.7	30	590	14.0	9.8	25	2.9	30	601	19.8	15.0	01	3.1																			
900	30	1.013	14.6	3.2	1.2	30	1.302	22.8	18.2	12	3.4	30	1.071	20.4	16.5	14	5.7	30	1.045	12.2	7.0	28	4.6	30	1.065	17.3	10.1	01	2.9																				
850	30	1.496	12.5	3	1.2	30	1.594	17.9	12.1	15	3.4	30	1.724	17.2	12.4	15	5.9	30	1.552	10.8	1.1	29	6.4	30	1.552	10.8	5.4	01	2.7																				
800	30	2.004	10.2	-2.1	1.6	30	2.061	14.2	6.0	13	2.5	30	2.071	15.5	8.2	15	4.3	30	2.029	9.2	-1.8	29	8.5	30	2.064	12.8	1.0	35	2.7																				
750	30	2.585	6.7	-4.7	2.6	3.1	2.604	11.4	2.5	14	2.0	30	2.587	12.5	4.2	13	3.3	30	2.562	7.0	-4.8	29	10.6	30	2.603	10.5	-3.7	33	3.3																				
700	30	3.100	2.6	-7.7	2.6	5.1	3.178	6.2	-2.1	15	1.2	30	3.163	9.2	-2	11	3.2	30	3.127	4.3	-7.6	29	13.0	30	3.174	7.2	-6.5	32	3.6																				
650	30	3.696	-1.1	-10.4	2.4	6.7	3.787	5.0	-5.1	14	1.4	30	3.774	6.0	-3.0	11	3.2	30	3.727	1.3	-11.1	29	14.3	30	3.781	4.0	-11.5	32	4.0																				
600	30	4.313	-4.7	-11.7	2.6	8.4	4.408	3.8	-8.6	9	1.6	30	4.376	5.2	-6.2	12	3.1	30	4.313	-2.4	-15.9	29	15.8	30	4.382	0.7	-14.6	31	4.1																				
550	30	5.310	-9.0	-19.3	2.4	9.4	5.152	-2	-13.7	32	1.2	30	5.174	-2.0	-9.9	12	2.0	30	5.053	-10	-20.3	29	16.9	30	5.175	-3.6	-20.1	31	3.5																				
500	30	5.742	-13.3	-25.4	2.4	11.4	5.882	-7.2	-17.4	31	1.4	30	5.876	-5.9	-16.7	12	1.7	30	5.792	-10.9	-26.4	29	16.9	30	5.867	-8.0	-24.4	30	3.4																				
450	30	6.536	-18.6	-30.1	2.4	12.1	6.696	-12.2	-23.6	30	2.0	30	6.694	-10.7	-22.4	11	2.1	30	6.596	-16.0	-31.1	29	17.0	30	6.677	-13.6	-28.6	29	3.7																				
400	30	7.404	-24.9	-36.1	2.2	12.2	7.466	-18.0	-29.8	32	2.9	30	7.591	-16.5	-27.3	12	1.9	30	7.473	-22.4	-36.5	28	17.7	30	7.562	-19.7	-34.9	28	4.5																				
350	30	8.363	-32.2	-48.0	2.4	12.8	8.576	-26.0	-36	32	3.9	30	8.584	-23.7	-34.4	12	2.2	30	8.442	-29.8	-42.7	28	18.1	30	8.542	-27.1	-41.6	27	6.0																				
300	30	9.470	-40.3	-54.5	2.4	14.4	9.672	-33.3	-45.1	31	5.2	30	9.689	-29.1	-42.2	11	2.4	30	9.573	-36.7	-48.3	27	18.2	30	9.630	-34.7	-47.9	27	6.7																				
250	30	10.651	-48.6			24	16.1	50	10.924	-43.9	33	7.7	30	10.947	-42.6		01	9	28	10.755	-47.5		29	20.3	30	10.873	-45.2		27	9.8																			
200	30	12.096	-54.6			25	18.8	50	12.364	-55.3	33	9.9	30	12.415	-54.7		32	3.2	30	12.201	-55.8		29	24.0	30	12.330	-55.0		28	10.1																			
175	30	12.944	-56.7			25	17.8	51	13.225	-61.1	33	9.7	30	13.257	-61.2		34	3.6	30	13.045	-59.0		30	23.5	30	13.174	-59.7		29	9.3																			
150	30	13.923	-56.4			25	16.3	54	14.169	-66.8	34	8.2	30	14.198	-68.1		36	3.4	30	14.007	-61.4		29	20.3	30	14.127	-64.0		30	8.7																			
125	30	15.067	-56.2			25	14.2	57	15.158	-71.8	35	6.3	30	15.277	-71.3		37	3.7	30	15.132	-63.2		29	19.3	30	15.253	-65.4		30	8.3																			
100	30	16.462	-60.0			24	9.5	53	16.571	-72.6	36	4.2	29	16.567	-75.1		06	5	27	16.501	-63.5		29	14.6	30	16.577	-67.8		31	4.4																			
75	29	17.859	-59.2			25	5.6	30	17.892	-68.9	06	6.4	28	17.875	-70.0		07	7.8	27	17.877	-61.9		29	10.1	29	17.924	-65.6		33	3.7																			
50	28	18.698	-58.4			25	3.4	51	18.466	-66.3	03	6.4	26	18.675	-67.2		09	9.6	27	18.707	-60.1		30	6.7	29	18.741	-63.0		04	2.1																			
25	28	19.675	-57.5			25	2.1	29	19.605	-62.4	03	6.6	25	19.612	-64.2		09	9.6	27	19.672	-58.4		31	4.7	29	19.696	-60.6		04	2.0																			
0	28	20.624	-56.7			32	5	29	20.716	-61.8	03	6.4	24	20.738	-61.3		09	11.4	27	20.825	-56.2		31	2.8	28	20.841	-57.1		07	2.2																			
40	25	22.243	-55.6			04	6	26	22.140	-56.5	03	6.7	24	22.156	-57.4		09	12.2	27	22.243	-50.8		31	2.8	28	22.258	-51.7		07	2.3																			
20	29	24.084	-53.2			36	1.6	27	24.025	-52.2	08	11.5	24	23.972	-52.8		08	15.2	27	24.112	-46.6		29	3.8	24	24.117	-51.3		09	5.8																			
5	28	25.262	-51.0			01	2.6	27	25.217	-49.9	09	12.1	24	25.154	-50.6		09	15.7	26	25.334	-49.5		19	6.6	25	25.308	-49.6		09	7.1																			
20	28	26.714	-50.1			31	1.6	26	26.718	-47.6	09	11.7	24	26.620	-48.4		09	14.3	24	26.774	-47.9		10	2.6	26	26.778	-49.9		08	6.9																			
5	28	28.611	-47.6			31	1.1	23	28.585	-45.0	09	11.2	17	28.546	-46.7		08	13.4	17	28.704	-45.2		09	1.4	23	28.687	-45.8		09	7.1																			
10	31	31.275	-45.5			26	4.6	13	31.302	-42.3	08	12.3	7	31.289	-41.3		09	15.9	9	31.434	-41.3		1	5.3	31	31.376	-42.3		08	7.6																			
7																																																	

## Average monthly values

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# RAWINSONDE DATA

Average monthly values

SEPTEMBER 1978

FLINT, MI 990 MB										GLASSBORO, MT 931 MB										GRAND JUNCTION, CO 853 MB										GREAT FALLS, MT 887 MB										GREEN RAY, WI 991 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Standard pressure surface mb.		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
SFC	29	236	14.1	11.2	21	1.2	30	696	9.6	5.6	05	1.9	30	1,472	13.7	1.5	12	2.8	30	1,118	10.4	4.0	23	3.3	30	210	13.1	11.4	27	.3	30	569	14.9	9.2	27	3.0	30	1,027	14.1	5.9	27	4.8	30	1,508	11.9	3.2	27	5.9	30	2,014	9.8	1.6	28	7.5	30	2,548	7.0	-2.7	27	9.2	30	3,113	4.1	-7.6	27	10.4	30	3,675	-1.3	-11.2	27	11.2	30	4,352	-2.9	-14.8	27	11.3	30	5,036	-6.7	-18.3	27	11.9	30	5,717	-11.4	-23.7	28	12.9	30	6,509	-19.2	-31.1	26	12.7	30	7,374	-25.6	-35.9	26	14.3	30	8,331	-32.8	-39.9	26	15.2	30	9,391	-41.1	-46.1	26	17.5	30	10,604	-50.4	-54.8	26	18.5	30	12,007	-58.6	-60.2	26	19.9	30	13,675	-66.3	-68.0	26	21.5	30	15,629	-74.2	-76.0	26	23.8	30	17,921	-81.2	-83.1	26	26.8	30	20,568	-87.8	-89.9	26	29.9	30	23,617	-94.0	-96.3	26	33.7	30	27,074	-100.0	-102.4	26	37.6	30	30,931	-105.8	-108.3	26	41.6	30	35,188	-110.8	-113.4	26	45.7	30	39,945	-115.4	-118.1	26	50.0	30	45,206	-119.6	-122.4	26	55.4	30	51,074	-123.4	-126.3	26	61.9	30	57,551	-126.8	-129.8	26	69.5	30	64,738	-129.8	-132.9	26	78.4	30	72,635	-132.4	-135.6	26	88.6	30	81,342	-134.6	-137.9	26	100.1	30	90,959	-136.4	-139.8	26	112.7	30	101,486	-137.8	-140.3	26	126.4	30	112,923	-138.8	-141.4	26	141.2	30	125,270	-139.4	-142.1	26	157.2	30	138,627	-139.7	-142.6	26	174.4	30	152,994	-140.0	-143.0	26	192.7	30	168,371	-140.3	-143.3	26	212.2	30	184,758	-140.6	-143.6	26	232.8	30	202,155	-140.9	-143.9	26	254.4	30	220,562	-141.2	-144.2	26	277.1	30	239,979	-141.5	-144.5	26	300.9	30	260,406	-141.8	-144.8	26	325.8	30	281,843	-142.1	-145.1	26	351.8	30	303,290	-142.4	-145.4	26	378.8	30	324,747	-142.7	-145.7	26	406.8	30	346,204	-143.0	-146.0	26	435.8	30	367,661	-143.3	-146.3	26	465.8	30	389,118	-143.6	-146.6	26	496.8	30	410,575	-143.9	-146.9	26	528.8	30	432,032	-144.2	-147.2	26	560.8	30	453,489	-144.5	-147.5	26	593.8	30	474,946	-144.8	-147.8	26	627.8	30	496,403	-145.1	-148.1	26	662.8	30	517,860	-145.4	-148.4	26	698.8	30	538,317	-145.7	-148.7	26	735.8	30	558,774	-146.0	-149.0	26	773.8	30	579,231	-146.3	-149.3	26	812.8	30	600,688	-146.6	-149.6	26	852.8	30	622,145	-146.9	-149.9	26	893.8	30	643,602	-147.2	-150.2	26	935.8	30	665,059	-147.5	-150.5	26	978.8	30	686,516	-147.8	-150.8	26	1022.8	30	707,973	-148.1	-151.1	26	1067.8	30	729,430	-148.4	-151.4	26	1113.8	30	750,887	-148.7	-151.7	26	1160.8	30	772,344	-149.0	-152.0	26	1208.8	30	793,801	-149.3	-152.3	26	1257.8	30	815,258	-149.6	-152.6	26	1307.8	30	836,715	-149.9	-152.9	26	1358.8	30	858,172	-150.2	-153.2	26	1410.8	30	879,629	-150.5	-153.5	26	1463.8	30	901,086	-150.8	-153.8	26	1517.8	30	922,543	-151.1	-154.1	26	1572.8	30	944,000	-151.4	-154.4	26	1628.8	30	965,457	-151.7	-154.7	26	1685.8	30	986,914	-152.0	-155.0	26	1743.8	30	1007,371	-152.3	-155.3	26	1802.8	30	1027,828	-152.6	-155.6	26	1862.8	30	1048,285	-152.9	-155.9	26	1923.8	30	1068,742	-153.2	-156.2	26	1985.8	30	1089,199	-153.5	-156.5	26	2048.8	30	1110,656	-153.8	-156.8	26	2112.8	30	1131,613	-154.1	-157.1	26	2178.8	30	1152,570	-154.4	-157.4	26	2245.8	30	1173,527	-154.7	-157.7	26	2313.8	30	1193,984	-155.0	-158.0	26	2382.8	30	1214,441	-155.3	-158.3	26	2453.8	30	1234,898	-155.6	-158.6	26	2525.8	30	1254,855	-155.9	-158.9	26	2598.8	30	1275,312	-156.2	-159.2	26	2672.8	30	1295,769	-156.5	-159.5	26	2748.8	30	1316,226	-156.8	-159.8	26	2825.8	30	1336,683	-157.1	-160.1	26	2903.8	30	1357,140	-157.4	-160.4	26	2982.8	30	1377,597	-157.7	-160.7	26	3063.8	30	1398,054	-158.0	-161.0	26	3145.8	30	1418,511	-158.3	-161.3	26	3228.8	30	1438,968	-158.6	-161.6	26	3313.8	30	1459,425	-158.9	-161.9	26	3400.8	30	1479,882	-159.2	-162.2	26	3488.8	30	1499,839	-159.5	-162.5	26	3578.8	30	1519,796	-159.8	-162.8	26	3669.8	30	1539,753	-160.1	-163.1	26	3762.8	30	1559,710	-160.4	-163.4	26	3857.8	30	1579,667	-160.7	-163.7	26	3954.8	30	1599,624	-161.0	-164.0	26	4053.8	30	1619,581	-161.3	-164.3	26	4154.8	30	1639,538	-161.6	-164.6	26	4256.8	30	1659,495	-161.9	-164.9	26	4360.8	30	1679,452	-162.2	-165.2	26	4466.8	30	1699,409	-162.5	-165.5	26	4574.8	30	1719,366	-162.8	-165.8	26	4684.8	30	1739,323	-163.1	-166.1	26	4796.8	30	1759,280	-163.4	-166.4	26	4910.8	30	1779,237	-163.7	-166.7	26	5026.8	30	1799,194	-164.0	-167.0	26	5144.8	30	1819,151	-164.3	-167.3	26	5264.8	30	1839,108	-164.6	-167.6	26	5386.8	30	1859,065	-164.9	-167.9	26	5510.8	30	1879,022	-165.2	-168.2	26	5636.8	30	1898,979	-165.5	-168.5	26	5764.8	30	1918,936	-165.8	-168.8	26	5894.8	30	1938,893	-166.1	-169.1	26	6026.8	30	1958,850	-166.4	-169.4	26	6160.8	30	1978,807	-166.7	-169.7	26	6297.8	30	1998,764	-167.0	-170.0	26	6437.8	30	2018,721	-167.3	-170.3	26	6580.8	30	2038,678	-167.6	-170.6	26	6726.8	30	2058,635	-167.9	-170.9	26	6875.8	30	2078,592	-168.2	-171.2	26	7028.8	30	2098,549	-168.5	-171.5	26	7184.8	30	2118,506	-168.8	-171.8	26	7344.8	30	2138,463	-169.1	-172.1	26	7508.8	30	2158,420	-169.4	-172.4	26	7676.8	30	2178,377	-169.7	-172.7	26	7848.8	30	2198,334	-170.0	-173.0	26	8024.8	30	2218,291	-170.3	-173.3	26	8204.8	30	2238,248	-170.6	-173.6	26	8388.8	30	2258,205	-170.9	-173.9	26	8576.8	30	2278,162	-171.2	-174.2	26	8769.8	30	2298,119	-171.5	-174.5	26	8967.8	30	2318,076	-171.8	-174.8	26	9170.8	30	2338,033	-172.1	-175.1	26	9378.8	30	2357,990	-172.4	-175.4	26	9591.8	30	2377,947	-172.7	-175.7	26	9809.8	30	2397,904	-173.0	-176.0	26	10032.8	30	2417,861	-173.3	-176.3	26	10260.8	30	2437,818	-173.6	-176.6	26	10494.8	30	2457,775	-173.9	-176.9	26	10734.8	30	2477,732	-174.2	-177.2	26	11080.8	30	2497,689	-174.5	-177.5	26	11532.8	30	2517,646	-174.8	-177.8	26	12092.8	30	2537,603	-175.1	-178.1	26	12760.8	30	2557,560	-175.4	-178.4	26	13536.8	30	2577,517	-175.7	-178.7	26	14422.8	30	2597,474	-176.0	-179.0	26	15418.8	30	2617,431	-176.3	-179.3	26	16515.8	30	2637,388	-176.6	-179.6	26	17713.8	30	2657,345	-176.9	-179.9	26	19013.8	30	2677,302	-177.2	-180.2	26	20415.8	30	2697,259	-177.5	-180.5	26	21919.8	30	2717,216	-177.8	-180.8	26	23525.8	30	2737,173	-178.1	-181.1	26	25234.8	30	2757,130	-178.4	-181.4	26	27046.8	30	2777,087	-178.7	-181.7	26	28961.8	30	2797,044	-179.0	-182.0	26	30980.8	30	2817,001	-179.3	-182.3	26	33104.8	30	2836,958	-179.6	-182.6	26	35334.8	30	2856,915	-179.9	-182.9	26	37670.8	30	2876,872	-180.2	-183.2	26	40114.8	30	2896,829	-180.5	-183.5	26	42658.8	30	2916,786	-180.8	-183.8	26	45363.8	30	2936,743	-181.1	-184.1	26	48130.8	30	2956,700	-181.4	-184.4	26	51051.8	30	2976,657	-181.7	-184.7	26	54128.8	30	2996,614	-182.0	-185.0	26	57364.8	30	3016,571	-182.3	-185.3	26	60761.8	30	3036,528	-182.6	-185.6	26	64321.8	30	3056,485



# RAWINSONDE DATA

Average monthly values

1977

KEY WEST, FL 1014 MB						KOROR, CAROLINE IS. 1006 MB						KOROR, CAROLINE IS. 1006 MB						KOROR, CAROLINE IS. 1006 MB												
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction Speed m.p.h.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction Speed m.p.h.					
500	3	26.6	23.7	11	1.1	1	15	7.5	4.9	1.5	30	3	26.7	24.0	19	1.1	20	6.3	3.9	1.1	1	15	7.5	4.9	1.5					
1000	3	12.4	26.7	23.5	1.1	1	15	7.5	4.9	1.5	30	3	12.4	26.7	23.5	1.1	20	6.3	3.9	1.1	1	15	7.5	4.9	1.5					
950	3	1.5	23.5	23.5	1.1	1	15	7.5	4.9	1.5	30	3	1.5	23.5	23.5	1.1	20	6.3	3.9	1.1	1	15	7.5	4.9	1.5					
900	3	1.053	20.4	19.5	12	1.1	15	7.5	4.9	1.5	30	3	1.053	20.4	19.5	12	1.1	15	7.5	4.9	1.5	30	3	1.053	20.4	19.5	12	1.1		
850	3	1.445	17.4	16.4	12	1.1	15	7.5	4.9	1.5	30	3	1.445	17.4	16.4	12	1.1	15	7.5	4.9	1.5	30	3	1.445	17.4	16.4	12	1.1		
800	3	2.664	14.5	9.1	11	1.8	15	1.826	-1.2	-4.7	1.5	30	3	2.664	14.5	9.1	11	1.8	15	1.826	-1.2	-4.7	1.5	30	3	2.664	14.5	9.1	11	1.8
750	3	2.606	11.5	5.6	10	1.5	15	2.339	-3.6	-7.6	1.4	30	3	2.606	11.5	5.6	10	1.5	15	2.339	-3.6	-7.6	1.4	30	3	2.606	11.5	5.6	10	1.5
700	3	1.184	8.3	1.3	10	1.1	15	2.339	-3.6	-7.6	1.4	30	3	1.184	8.3	1.3	10	1.1	15	2.339	-3.6	-7.6	1.4	30	3	1.184	8.3	1.3	10	1.1
650	3	3.790	5.1	-1.9	10	1.1	15	3.496	-9.6	-19.9	2.4	30	3	3.790	5.1	-1.9	10	1.1	15	3.496	-9.6	-19.9	2.4	30	3	3.790	5.1	-1.9	10	1.1
600	3	4.434	1.3	-5.4	10	1.1	15	4.434	-13.2	-23.3	2.4	30	3	4.434	1.3	-5.4	10	1.1	15	4.434	-13.2	-23.3	2.4	30	3	4.434	1.3	-5.4	10	1.1
550	3	5.135	-2.9	-11.5	11	1.8	15	4.729	-17.1	-26.8	2.2	30	3	5.135	-2.9	-11.5	11	1.8	15	4.729	-17.1	-26.8	2.2	30	3	5.135	-2.9	-11.5	11	1.8
500	3	5.988	-7.4	-16.9	15	1.1	15	5.988	-16.9	-26.8	2.2	30	3	5.988	-7.4	-16.9	15	1.1	15	5.988	-16.9	-26.8	2.2	30	3	5.988	-7.4	-16.9	15	1.1
450	3	6.898	-12.3	-20.6	15	1.1	15	6.203	-27.3	-35.2	2.0	30	3	6.898	-12.3	-20.6	15	1.1	15	6.203	-27.3	-35.2	2.0	30	3	6.898	-12.3	-20.6	15	1.1
400	3	7.588	-18.1	-27.2	34	1.8	15	7.041	-33.6	-44.7	2.0	30	3	7.588	-18.1	-27.2	34	1.8	15	7.041	-33.6	-44.7	2.0	30	3	7.588	-18.1	-27.2	34	1.8
350	3	8.575	-25.2	-35.4	35	2.1	15	7.967	-40.7	-51.1	2.0	30	3	8.575	-25.2	-35.4	35	2.1	15	7.967	-40.7	-51.1	2.0	30	3	8.575	-25.2	-35.4	35	2.1
300	3	9.672	-33.8	-45.0	34	1.4	15	8.849	-47.6	-58.1	1.9	30	3	9.672	-33.8	-45.0	34	1.4	15	8.849	-47.6	-58.1	1.9	30	3	9.672	-33.8	-45.0	34	1.4
250	3	10.923	-44.3	-54.3	34	1.4	15	10.192	-51.3	-61.7	1.9	30	3	10.923	-44.3	-54.3	34	1.4	15	10.192	-51.3	-61.7	1.9	30	3	10.923	-44.3	-54.3	34	1.4
200	3	12.186	-55.9	-64.3	34	1.4	15	11.455	-60.6	-71.1	1.9	30	3	12.186	-55.9	-64.3	34	1.4	15	11.455	-60.6	-71.1	1.9	30	3	12.186	-55.9	-64.3	34	1.4
175	3	13.117	-62.0	-70.0	34	1.4	15	12.386	-67.6	-78.1	1.9	30	3	13.117	-62.0	-70.0	34	1.4	15	12.386	-67.6	-78.1	1.9	30	3	13.117	-62.0	-70.0	34	1.4
150	3	14.158	-67.5	-75.5	34	1.4	15	13.427	-74.1	-84.6	1.9	30	3	14.158	-67.5	-75.5	34	1.4	15	13.427	-74.1	-84.6	1.9	30	3	14.158	-67.5	-75.5	34	1.4
125	3	15.244	-71.7	-79.5	34	1.4	15	14.513	-80.6	-90.6	1.9	30	3	15.244	-71.7	-79.5	34	1.4	15	14.513	-80.6	-90.6	1.9	30	3	15.244	-71.7	-79.5	34	1.4
100	3	16.558	-72.3	-80.5	34	1.4	15	15.827	-81.2	-91.2	1.9	30	3	16.558	-72.3	-80.5	34	1.4	15	15.827	-81.2	-91.2	1.9	30	3	16.558	-72.3	-80.5	34	1.4
75	3	17.681	-69.1	-78.5	34	1.4	15	16.950	-78.1	-88.1	1.9	30	3	17.681	-69.1	-78.5	34	1.4	15	16.950	-78.1	-88.1	1.9	30	3	17.681	-69.1	-78.5	34	1.4
50	3	18.685	-66.2	-75.5	34	1.4	15	17.951	-75.1	-85.1	1.9	30	3	18.685	-66.2	-75.5	34	1.4	15	17.951	-75.1	-85.1	1.9	30	3	18.685	-66.2	-75.5	34	1.4
25	3	19.624	-63.9	-73.5	34	1.4	15	18.882	-72.6	-82.6	1.9	30	3	19.624	-63.9	-73.5	34	1.4	15	18.882	-72.6	-82.6	1.9	30	3	19.624	-63.9	-73.5	34	1.4
0	3	20.754	-60.4	-70.5	34	1.4	15	20.012	-69.1	-79.1	1.9	30	3	20.754	-60.4	-70.5	34	1.4	15	20.012	-69.1	-79.1	1.9	30	3	20.754	-60.4	-70.5	34	1.4
43	3	22.157	-56.8	-66.5	34	1.4	15	22.155	-65.5	-75.5	1.9	30	3	22.157	-56.8	-66.5	34	1.4	15	22.155	-65.5	-75.5	1.9	30	3	22.157	-56.8	-66.5	34	1.4
35	3	23.497	-52.6	-62.5	34	1.4	15	23.497	-61.3	-71.3	1.9	30	3	23.497	-52.6	-62.5	34	1.4	15	23.497	-61.3	-71.3	1.9	30	3	23.497	-52.6	-62.5	34	1.4
25	3	25.182	-47.7	-57.5	34	1.4	15	25.182	-56.3	-66.3	1.9	30	3	25.182	-47.7	-57.5	34	1.4	15	25.182	-56.3	-66.3	1.9	30	3	25.182	-47.7	-57.5	34	1.4
20	3	26.652	-44.1	-54.1	34	1.4	15	26.652	-52.7	-62.7	1.9	30	3	26.652	-44.1	-54.1	34	1.4	15	26.652	-52.7	-62.7	1.9	30	3	26.652	-44.1	-54.1	34	1.4
15	3	28.574	-44.4	-54.4	34	1.4	15	28.574	-52.7	-62.7	1.9	30	3	28.574	-44.4	-54.4	34	1.4	15	28.574	-52.7	-62.7	1.9	30	3	28.574	-44.4	-54.4	34	1.4
10	3	31.345	-38.0	-48.0	34	1.4	15	31.345	-46.7	-56.7	1.9	30	3	31.345	-38.0	-48.0	34	1.4	15	31.345	-46.7	-56.7	1.9	30	3	31.345	-38.0	-48.0	34	1.4
7	3						7				30	3					30					30	3							

LANDER, WY 810 MB										LITTLE ROCK, AR 993 MB										LONGVIEW, TX 1002 MB										MCGRATH, AK 800 MB									
SFC	30	1.697	9.9	3.4	1.2	30	3	1.697	9.9	3.4	1.2	30	3	1.697	9.9	3.4	1.2	30	3	1.697	9.9	3.4	1.2	30	3	1.697	9.9	3.4	1.2										
1000																																							
950																																							
900																																							
850																																							
800	30	2.005	13.0	-1.7	24	1.2	30	2.056	12.6	-2.5	26	1.2	30	2.005	13.0	-1.7	24	1.2	30	2.005	13.0	-1.7	24	1.2	30	2.005	13.0	-1.7	24										
750	30	2.545	10.0	-3.9	25	2.4	30	2.597	11.2	-6.7	29	6.9	30	2.545	10.0	-3.9	25	2.4	30	2.545	10.0	-3.9	25	2.4	30	2.545	10.0	-3.9	25										
700	30	3.114	6.0	-6.4	26	4.9	30	3.170	8.4	-10.4	29	4.9	30	3.114	6.0	-6.4	26	4.9	30	3.114	6.0	-6.4	26	4.9	30	3.114	6.0	-6.4	26										
650	30	3.717	1.7	-9.0	24	7.1	30	3.779	5.9	-14.0	30	3.8	30	3.717	1.7	-9.0	24	7.1	30	3.717	1.7	-9.0	24	7.1	30	3.717	1.7	-9.0	24										
600	30	4.357	-2.7	-13.6	25	9.5	30	4.430	2.1	-16.2	30	1.7	30	4.357	-2.7	-13.6	25	9.5	30	4.357	-2.7	-13.6	25	9.5	30	4.357	-2.7	-13.6	25										
550	30	5.041	-7.2	-18.7	25	9.6	30	5.124	-2.3	-20.2	30	1.4	30	5.041	-7.2	-18.7	25	9.6	30	5.041	-7.2	-18.7	25	9.6	30	5.041	-7.2	-18.7	25										
500	30	5.777	-12.5	-25.2	25	10.2	30	5.876	-7.1	-24.6	28	4.9	30	5.777	-12.5	-25.2	25	10.2	30	5.777	-12.5	-25.2	25	10.2	30	5.777	-12.5	-25.2	25										
450	30	6.573	-17.9	-29.7	25	12.0	30	6.690	-12.2	-28.9	26	2.2	30	6.573	-17.9	-29.7	25	12.0	30	6.573	-17.9	-29.7	25	12.0	30	6.573	-17.9	-29.7	25										
400	30	7.444	-23.7	-36.5	24	12.5	29	7.580	-18.7	-33.4	26	4.5	30	7.444	-23.7	-36.5	24	12.5	29	7.444	-23.7	-36.5	24	12.5	29	7.444	-23.7	-36.5	24										
350	30	8.408	-31.2	-42.6	25	12.4	29	8.564	-26.2	-39.7	27	6.1	30	8.408	-31.2	-42.6	25	12.4	29	8.408	-31.2	-42.6	25	12.4	29	8.408	-31.2	-42.6	25										
300	30	9.479	-39.7	-49.1	25	13.7	29	9.657	-34.6	-47.6	27	12.0	30	9.479	-39.7	-49.1	25	13.7	29	9.479	-39.7	-49.1	25	13.7	29	9.479	-39.7	-49.1	25										
250	30	10.703	-47.9	-57.4	25	17.4	29	10.904	-42.7	-55.4	27	17.5	30	10.703	-47.9	-57.4	25	17.4	29	10.703	-47.9	-57.4	25	17.4	29	10.703	-47.9	-57.4	25										
200	30	12.149	-55.6	-65.0	25	20.6	29	12.360	-50.4	-62.9	27	21.1	30	12.149	-55.6	-65.0	25	20.6	29	12.149	-55.6	-65.0	25	20.6	29	12.149	-55.6	-65.0	25										
175	30	12.995	-57.9	-67.9	25	20.6	29	13.199	-61.9	-69.9	27	20.9	30	12.995	-57.9	-67.9	25	20.6	29	12.995	-57.9	-67.9	25	20.6	29	12.995	-57.9	-67.9	25										
150	30	13.964	-59.7	-70.7	25	17.3	29	14.143	-64.7	-72.7	27	17.2	30	13.964	-59.7	-70.7	25	17.3	29	13.964	-59.7	-70.7	25	17.3	29	13.964	-59.7	-70.7	25										
125	30	15.098	-61.9	-72.9	25	15.0	28	15.231	-70.2	-78.2	26	10.1	30	15.098	-61.9	-72.9	25	15.0	28	15.098	-61.9	-72.9	25	15.0	28	15.098	-61.9	-72.9	25										
100	30	16.493	-62.7	-73.9	25	10.2	26	16.652	-71.5	-79.5	26	2.6	30	16.493	-62.7	-73.9	25	10.2	26	16.493	-62.7	-73.9	25	10.2	26	16.493	-62.7	-73.9	25										
75	30	17.862	-61.7	-72.3	24	3.8	28	17.872	-70.1	-78.1	26	4.3	30	17.862	-61.7	-72.3	24	3.8	28	17.862	-61.7	-72.3	24	3.8	28	17.862	-61.7	-72.3	24										
50	30	18.692	-60.7	-71.7	24	2.4	28	18.671	-67.9	-75.9	26	7.5	30	18.692	-60.7	-71.7	24	2.4	28	18.692	-60.7	-71.7	24	2.4	28	18.692	-60.7	-71.7	24										
25	30	19.654	-59.8	-70.8	27	1.5	26	19.605	-62.3	-70.3	26	10.9	30	19.654	-59.8	-70.8	27	1.5	26	19.654	-59.8	-70.8	27	1.5	26	19.654	-59.8	-70.8	27										
0	30	20.797	-58.9	-69.4	24	1.0	28	20.725	-61.3	-69.3	26	12.1	30	20.797	-58.9	-69.4	24	1.0	28	20.797	-58.9	-69.4	24	1.0	28	20.797	-58.9	-69.4	24										
0	30	22.206	-56.8	-68.0	23	1.6	28	22.120	-58.3	-66.3	29	14.3	30	22.206	-56.8	-68.0	23	1.6	28	22.206	-56.8	-68.0	23	1.6	28	22.206	-56.8	-68.0	23										
0	30	24.642	-53.6	-64.0	02	2.1	26	23.949	-54.0	-62.0	30	17.0	30	24.642	-53.6	-64.0	02	2.1	26	24.642	-53.6	-64.0	02	2.1	26	24.642	-53.6	-64.0	02										
0	26	25.216	-52.6	-63.0	03	2.4	28	25.127	-51.5	-59.5	29	18.1	29	25.216	-52.6	-63.0	03	2.4	28	25.216	-52.6	-63.0	03	2.4	28	25.216	-52.6	-63.0	03										
0	26	26.664	-50.2	-60.3	03	3.9	26	26.584	-49.1	-57.1	30	19.0	28	26.664	-50.2	-60.3	03	3.9	26	26.664	-50.2	-60.3	03	3.9	26	26.664	-50.2	-60.3	03										
0	15	28.597	-48.3	-58.3	28	1.3	26	28.484	-46.1	-54.1	29	18.9	28	28.597	-48.3	-58.3	28	1.3	26	28.597	-48.3	-58.3	28	1.3	26	28.597	-48.3	-58.3	28										
0	10	31.246	-44.1	-52.9	29	3.1	21	31.203	-42.1	-50.1	29	18.7	21	31.246	-44.1	-52.9	29	3.1	21	31.246	-44.1	-52.9	29	3.1	21	31.246	-44.1	-52.9	29										
0	7							33.619	-39.3			17	7																										

## Average monthly value

SEPTEMBER 1978

MONETT, MO 966 MB										NASHVILLE, TN 997 MB										NOME, AK 100 MB										NORTH PLATTE, NE 918 MB										OAKLAND, CA 1013 MB											
Standard pressure surface mb		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind											
SFC	30	60	90	120	150	180	210	240	270	300	330	360	SFC	30	60	90	120	150	180	210	240	300	330	360	SFC	30	60	90	120	150	180	210	240	300	330	360	SFC	30	60	90	120	150	180	210	240	300	330	360			
1000	950	900	850	800	750	700	650	600	550	500	450	400	1000	950	900	850	800	750	700	650	600	550	500	450	400	1000	950	900	850	800	750	700	650	600	550	500	450	400	1000	950	900	850	800	750	700	650	600	550	500	450	400
564	586	606	626	646	666	686	706	726	746	766	786	806	564	586	606	626	646	666	686	706	726	746	766	786	806	564	586	606	626	646	666	686	706	726	746	766	786	806	564	586	606	626	646	666	686	706	726	746	766	786	806
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0
10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	10.2	10.1	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	



## Average monthly values

ЧЕРТЕЖИ И ДРУГОЕ

SALEM, IL 997 MB												SALEM, IN 1009 MB												SALE, LAKE CITY, IL 977 MB												SALE, LAKE CITY, IL 977 MB											
Standard pressure surface mb		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind							
5FC	30	1.174	16.3	15.1	13	4	30	61	12.7	7.8	10	1-1	1.288	12.5	7.8	10	1-1	1.288	12.5	7.8	10	1-1	1.288	12.5	7.8	10	1-1	1.288	12.5	7.8	10	1-1	1.288	12.5	7.8	10	1-1	1.288	12.5	7.8	10	1-1					
100	30	1.202	12.8	8.8																																											
950	30	1.591	19.9	11.7	2.8	3.6	30	569	17.3	9.8	20	1-2																																			
900	30	1.056	17.5	6.8	2.5	3.6	30	1,021	10.3	5.9	23	3-4																																			
850	30	1.543	15.5	3.6	2.7	3.6	30	1,495	7.8	4.8	23	4-5	1.106	13.5	8.3	18	5-2	1.197	12.7	2.5	14.5	1-0	1.486	16.8	11.2	12	5-2																				
800	30	2.058	13.6	-1.9	2.5	3.9	30	1,993	5.2	-3.0	24	5-5	2.219	11.1	1.8	19	3-4	2.113	15.7	-2.1	17.7	4-3	2.055	14.2	6.7	12	8-2																				
750	30	2.597	11.1	-5.8	2.5	4.3	30	2,518	2.6	-6.7	24	7-2	2.659	8.8	-2.6	24	8-2	2.567	15.7	-5.0	20.0	4-9	2.688	11.5	2.6	12	3-9																				
700	30	3.168	7.5	-9.6	2.6	5.0	30	3,075	1.1	-10.9	24	9-2	3.127	5.8	-4.6	24	9-2	3.132	8.9	-8.1	26.0	1-1	3.132	8.8	-2.8	12	3-9																				
650	30	3.774	3.8	-11.9	2.5	4.8	30	3,684	-1.2	-15.7	24	11-3	3.726	1.8	-7.5	24	7-8	3.788	5.9	-11.7	22.5	4-5	3.782	4.0	-2.6	11	3-3																				
600	30	4.420	-0.1	-17.0	2.6	5.5	30	4,293	-6.9	-18.2	24	12-3	4.466	-3.4	-12.2	24	8-9	4.393	2.9	-16.6	24.6	4-9	4.383	1.3	-11.5	12	2-0																				
550	30	5.111	-4.2	-21.8	2.6	5.8	30	4,987	-10.7	-23.2	25	13-4	5.054	-7.7	-17.0	24	9-8	4.991	-2.2	-21.0	27.7	5-5	5.125	-2.9	-15.2	13	1-8																				
500	30	5.856	-8.9	-26.2	2.6	6.0	30	5,685	-14.9	-27.8	25	14-5	5.778	-12.1	-23.8	24	9-6	5.884	-7.1	-25.5	28.7	6-1	5.874	-7.4	-20.6	13	1-1																				
450	30	6.664	-14.3	-33.5	2.7	5.8	30	6,484	-20.3	-31.4	25	16-9	6.682	-17.1	-28.9	18	9-10	6.654	-12.9	-30.0	28.6	6-2	6.687	-12.4	-25.4	14	1-2																				
400	30	7.546	-20.8	-38.5	2.8	6.7	30	7,385	-26.4	-36.4	25	18-1	7.452	-24.1	-35.8	28	11-3	7.388	-19.8	-39.7	27.7	7-1	7.537	-18.4	-31.9	11	5-5																				
350	30	8.522	-27.9	-46.6	2.8	7.5	30	8,303	-33.1	-42.8	26	20-6	8.416	-31.0	-40.1	28	11-8	8.319	-27.9	-43.0	27.7	7-2	8.582	-26.1	-39.3	9	5-5																				
300	30	9.607	-36.5	-48.0	2.9	8.8	28	9,367	-40.7	-51.1	25	21-8	9.490	-38.1	-48.8	24	11-5	9.298	-35.1	-50.0	26	7-6	9.659	-33.9	-48.2	13	4-9																				
250	30	10.846	-45.1		29	10.4	26	10,587	-48.7		26	22-8	10.720	-46.9		24	16-1	10,847	-46.9		26	11-2	11.141	-43.9		29	2-0																				
200	30	12.001	-54.8		29	13.9	26	12,031	-55.0		26	20-8	12,172	-54.9		25	17-2	12,107	-58.0		25	13-8	12,371	-54.6		28	3-1																				
175	30	13,147	-58.9		29	14.4	28	13,862	-56.1		25	19-8	13,019	-57.9		24	19-0	13,153	-58.0		24	19-8	13,211	-61.3		29	4-8																				
150	30	14,108	-62.7		28	15.3	28	14,860	-57.0		25	18-7	13,998	-60.1		24	16-9	14,111	-63.1		25	15-8	14,158	-67.5		31	5-5																				
125	30	15,222	-68.9		29	11.2	28	15,012	-57.8		25	15-0	15,120	-61.8		26	13-2	15,104	-68.6		25	13-5	15,201	-71.3		19	4-5																				
100	30	16,572	-66.4		29	7.7	28	16,502	-57.7		25	11-2	16,495	-65.1		24	8-5	16,568	-68.4		24	8-8	16,693	-71.3		23	2-7																				
80	29	17,927	-68.8		31	4.2	28	17,829	-57.0		25	6-6	17,973	-81.4		24	4-2	18,113	-65.9		20	1-5	17,865	-70.8		10	6-0																				
70	29	18,747	-62.6		3	2.4	29	18,678	-58.6		24	4-5	18,702	-80.4		22	2-3	18,708	-80.4		11	2-7	18,865	-67.3		10	8-7																				
60	29	19,708	-60.1		02	2.4	28	19,654	-58.4		25	3-6	19,688	-59.9		19	1-1	19,677	-82.1		10	4-9	19,630	-68.8		10	10-1																				
50	29	20,848	-57.4		05	2.3	27	20,818	-57.4		25	1-8	20,807	-57.4		18	1-2	20,807	-82.1		10	5-7	20,821	-71.3		10	10-8																				
40	29	22,266	-58.6		05	1.8	27	22,236	-55.2		25	4-6	22,218	-58.6		08	2-3	22,219	-58.6		09	7-1	22,154	-59.9		10	9-9																				
30	29	24,119	-51.7		07	2.4	27	24,080	-53.5		30	1-3	24,055	-53.1		04	2-1	24,066	-53.1		09	8-1	24,060	-53.5		11	17-7																				
25	29	25,308	-49.7		08	2.8	27	25,256	-52.2		32	1-5	25,232	-52.1		38	2-7	25,285	-51.2		08	8-1	25,2121	-51.2		11	18-8																				
20	29	26,779	-47.2		08	2.6	27	26,708	-50.3		29	1-7	26,685	-49.8		09	1-5	26,705	-49.8		09	7-9	26,682	-49.7		10	22-1																				
15	29	28,690	-44.8		08	3.9	25	28,595	-48.0		27	2-2	28,625	-47.6		07	1-7	28,604	-48.8		09	7-8	28,641	-48.1		10	28-1																				
10	29	31,406	-41.6		09	2.8	27	31,301	-48.2		25	3-2	31,277	-48.8		10	1-6	31,299	-43.9		08	4-8	31,208	-47.2		10	28-5																				
7	5	33,832	-40.0		6	33,709	-40.1					5	33,774	-39.4									5	31,683	-38.8																						

SAULT STE MARIE, MI 991 MB										SPOKANE, WA 931 MB										TAMPA BAY, FL 1014 MB										TOPEKA, KS 904 MB										TRUCK, CAROLINE IS. 1010 MB									
SFC	30	221	10.4	7.6	10	1.3	30	720	9.4	6.3	18	2.3	30	13	21.9	21.1	36	1.2	30	268	17.1	14.6	35	4.7	30	2	29.1	24.5	21	4.5																			
1000																																																	
950	30	570	10.3	6.6	19	1.4	30	136	24.1	21.6	09	2.0	30	585	22.5	17.7	10	2.1	30	573	20.9	13.0	20	4.5	30	92	27.6	23.6	20	4.6																			
900	30	1,020	9.6	5.5	28	3.8	30	1,003	11.8	5.7	20	3.5	30	1,055	19.8	13.6	08	1.8	30	1,041	19.6	9.8	22	6.2	30	1,020	21.3	18.3	14	1.9																			
850	30	1,495	8.9	4.1	1.28	5.3	30	1,481	10.3	1.6	23	4.0	30	1,586	16.9	9.4	07	1.9	30	1,531	17.5	7.2	24	5.8	30	1,514	18.3	14.2	12	1.9																			
800	30	1,995	8.8	-2.2	28	7.7	30	1,983	7.1	-6.23	4.8	30	2,081	14.0	5.6	07	1.8	30	2,046	14.6	1.8	25	4.2	30	2,035	15.6	11.1	11	2.1																				
750	30	2,525	8.6	-5.3	28	10.3	30	2,511	3.3	-2.65	8.3	30	2,603	12.2	1.7	06	1.6	30	2,569	11.7	-1.0	25	4.3	30	2,560	13.1	7.8	11	3.1																				
700	30	3,086	2.4	-8.1	28	12.1	30	3,067	-0.0	-6.67	2.4	8.5	30	3,177	8.2	-2.7	02	1.1	30	3,163	7.5	-8.1	26	4.7	30	3,158	10.1	4.1	10	3.6																			
650	30	3,681	-0.6	-11.1	28	13.7	30	3,658	-3.2	-11.7	2.4	10.5	30	3,785	4.7	-5.4	33	1.4	30	3,773	3.8	-9.9	26	5.0	30	3,772	6.8	3.3	10	4.3																			
600	30	4,317	-4.1	-16.6	28	15.5	30	4,287	-6.9	-16.4	2.4	10.5	30	4,434	1.0	-8.3	32	1.6	30	4,416	-0.0	-16.5	25	4.9	30	4,426	2.9	-3.1	10	4.6																			
550	30	4,998	-8.2	-21.0	28	17.7	30	4,961	-11.3	-21.5	2.4	12.1	30	5,129	-2.9	-13.3	30	1.9	30	5,108	-4.0	-20.6	24	6.4	30	5,127	-4.0	-7.7	09	5.1																			
500	30	5,732	-12.5	-25.8	28	19.2	30	5,686	-15.7	-25.8	2.4	13.1	30	5,878	-7.0	-17.8	31	2.1	30	5,853	-8.8	-27.1	24	7.1	30	5,883	-4.7	-14.4	09	5.1																			
450	30	6,529	-17.7	-30.5	28	20.3	30	6,473	-20.8	-30.3	2.4	15.0	30	6,693	-12.1	-23.0	31	2.4	30	6,661	-14.7	-30.1	25	7.4	30	6,705	-9.6	-19.3	09	4.8																			
400	30	7,398	-23.8	-35.5	28	21.4	30	7,333	-28.8	-36.7	2.4	16.5	30	7,584	-18.1	-30.0	32	2.7	30	7,543	-20.7	-35.4	25	8.9	30	7,605	-15.5	-25.0	09	4.3																			
350	30	8,363	-30.0	-41.6	28	23.2	30	8,285	-34.0	-42.2	2.4	18.2	30	8,671	-25.1	-36.4	34	3.7	30	8,619	-28.0	-39.7	26	9.8	30	8,605	-21.8	-32.7	09	4.2																			
300	29	9,435	-39.4	-45.4	28	25.5	29	9,347	-41.5	-49.5	2.4	20.3	30	9,869	-33.5	-45.1	34	5.6	30	9,604	-36.4	-47.6	26	12.3	30	9,717	-30.3	-40.3	09	4.2																			
250	29	10,657	-49.0		29	27.6	29	10,563	-49.3		2.4	21.1	30	10,922	-44.0		35	7.8	30	10,684	-45.5		27	15.5	28	10,987	-40.6	-49.6	09	5.0																			
200	29	12,096	-56.1		29	29.2	29	12,005	-54.9		2.4	22.3	30	12,381	-55.5		35	9.1	30	12,100	-54.8		27	18.9	4	12,466	-53.3		09	5.9																			
150	29	12,942	-57.7		29	28.1	29	12,859	-55.2		2.4	20.7	30	13,222	-61.1		36	9.1	30	13,147	-58.7		27	19.1	24	13,312	-60.5		08	6.3																			
100	29	13,911	-59.6		29	24.1	29	13,841	-55.6		2.4	17.3	30	14,165	-66.5		36	7.3	30	14,100	-62.6		27	17.9	29	14,254	-68.5		08	5.5																			
75	29	15,049	-60.9		29	21.6	29	14,998	-56.9		2.5	15.5	30	15,257	-70.4		01	6.3	30	15,222	-65.4		27	14.8	28	15,327	-75.8		09	6.2																			
50	29	16,336	-60.3		29	15.6	29	16,441	-57.1		2.5	9.4	30	16,576	-71.6		03	4.5	30	16,575	-68.2		28	8.2	28	16,600	-78.5		08	7.0																			
25	29	17,829	-59.2		29	11.5	29	17,823	-57.1		2.5	6.2	30	17,902	-68.5		07	6.1	30	17,930	-66.1		29	2.8	28	17,896	-71.3		09	5.5																			
0	29	18,668	-58.4		30	9.3	29	18,671	-56.1		2.5	4.6	30	18,729	-65.5		08	6.2	29	18,750	-62.7		34	1.2	28	18,692	-68.6		09	4.0																			
60	29	19,642	-57.0		30	6.9	29	19,651	-55.9		2.6	3.2	29	19,651	-62.6		08	7.5	29	19,700	-61.0		74	2.2	27	19,674	-65.3		11	1.6																			
35	29	20,799	-56.0		30	4.9	29	20,811	-55.8		2.6	1.6	29	20,784	-59.7		09	10.0	29	20,820	-58.2		74	2.4	27	20,793	-61.9		23	0.2																			
10	29	22,221	-54.4		30	3.9	29	22,233	-55.4		3.0	1.7	29	22,188	-56.6		09	11.8	29	22,255	-55.9		07	3.1	27	22,132	-59.5		07	1.0																			
0	29	24,075	-51.4		29	3.2	29	24,073	-54.2		3.1	2.2	28	24,030	-53.1		09	14.1	29	24,104	-51.8		07	3.5	27	23,948	-55.7		09	6.2																			
25	27	25,259	-50.3		28	3.1	29	25,247	-52.5		3.0	2.4	28	25,212	-50.5		09	13.5	29	25,291	-50.3		06	3.5	27	25,118	-52.6		09	11.4																			
20	26	26,720	-48.0		27	4.5	27	26,690	-50.5		2.8	4.1	27	26,676	-47.8		09	12.8	27	26,758	-47.8		07	3.2	25	26,569	-49.0		10	29.6																			
15	24	28,633	-45.3		26	4.1	26	28,579	-48.1		2.9	3.6	25	28,545	-45.3		09	13.5	25	28,584	-46.1		07	3.0	17	28,460	-46.0		10	18.9																			
10	23	31,365	-41.7		26	4.3	20	31,248	-45.1		2.7	6.3	18	31,324	-41.2		09	11.2	21	31,171	-42.2		10	5.3																									
7	7	33,759	-38.1				6	33,655	-42.2											6	33,788	-39.3																											



## Average monthly values

SEPTEMBER 1978

YAKUTSK, AK 1076 MB					YAP, CAROLINE IS. 1008 MB						
5FC	3	12	7.3	6.7	1.7	3.0	14	27.7	24.1	2.6	1.0
1000	2	82	9.3	7.2	1.6	3.0	82	26.3	23.5	2.6	.9
950	2	490	8.4	4.2	3.6	3.0	535	23.7	21.2	2.4	.8
900	3	935	5.7	1.7	4.4	3.0	1,005	20.9	17.9	2.6	.6
850	3	1,400	3.0	-1.6	4.6	3.0	1,502	18.2	14.6	2.3	.7
800	3	1,890	4	-3	5.5	3.0	2,021	15.7	11.5	1.6	.1
750	3	2,405	-2.2	-5.6	5.5	3.0	2,567	12.9	8.6	1.0	.6
700	3	2,951	-5.1	-10.8	5.2	3.0	3,144	9.6	5.5	1.0	1.6
650	3	3,530	-8.5	-14.6	5.0	3.0	3,758	6.4	1.1	.6	2.4
600	3	4,146	-12.5	-19.7	4.9	3.0	4,411	2.7	-1.7	1.0	3.1
550	3	4,805	-16.9	-25.9	4.8	3.0	5,111	-1.0	-6.3	1.0	3.6
500	3	5,514	-21.8	-30.6	4.9	3.0	5,866	-5.3	-11.7	.9	3.4
450	3	6,281	-27.6	-35.7	5.1	3.0	6,668	-9.8	-16.9	.9	3.3
400	3	7,116	-34.0	-40.9	6.2	3.0	7,588	-14.3	-23.4	.9	3.1
350	3	8,042	-41.1	-45.1	6.3	3.0	8,587	-22.0	-30.1	1.0	3.2
300	3	9,069	-48.9		6.7	3.0	9,700	-30.4	-39.9	.9	3.7
250	3	10,255	-52.4		7.4	3.0	10,968	-40.8	-48.9	.8	5.0
200	3	11,695	-51.5		7.7	3.0	12,445	-53.5		.8	6.4
175	3	12,568	-50.7		7.8	3.0	13,290	-60.7		.8	7.4
150	3	13,573	-50.6		8.1	3.0	14,232	-68.7		.7	8.8
125	2	14,769	-51.6		8.7	3.0	15,304	-75.9		.7	10.9
100	2	16,220	-51.7		9.4	3.0	16,580	-77.6		.6	11.3
75	2	17,665	-51.5		10.3	3.0	17,879	-71.5		.9	7.8
50	2	18,531	-52.0		11.3	3.0	18,673	-68.4		.8	6.6
25	2	19,535	-52.2		12.3	3.0	19,605	-65.4		.8	5.3
0	2	20,708	-52.7		13.1	2.9	20,724	-62.3		.9	4.2
40	2	22,145	-53.0		14.1	2.9	22,110	-59.6		.9	5.5
20	2	24,003	-53.5		15.0	2.9	23,928	-55.1		.9	10.7
0	2	25,177	-53.4		16.1	2.7	25,799	-52.9		.9	15.7
20	2	26,814	-52.9		17.4	2.4	26,551	-49.6		.9	23.4
15	2	28,510	-51.0		18.4	2.2	28,487	-44.1		.9	26.4
10	2	31,235	-47.7		19.6	1.8	31,184	-40.2		.9	36.6
						b	33,262	-37.9			

# SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	
MADISON, WI										MADISON, WI									
Air mass										Air mass									
4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69		3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34	
1-----										1----	1.12	1.20	1.39		1.52	1.41	1.37	1.24	1.12
2-----	S .58	S .64	S .59	S .71	S .82	S .93	S .81	S .70	S .61	2-----	1.20	1.26	1.32	1.41					
3-----						S .91		M .62	M .52	3-----	1.14	1.21	1.31	1.41	1.54				
4-----							M .70	M .68	M .57	4-----	1.18	1.26	1.35	1.41					
5-----								M .59	M .42	5-----						1.46	1.37	1.28	1.18
6-----										6-----	1.22	1.30	1.38	1.47					
7-----										7-----	1.23	1.31	1.38	1.47					
8-----										8-----	1.26	1.33	1.41	1.51					
9-----										9-----	1.24	1.30	1.38	1.48	1.56	1.43	1.33	1.24	1.15
10-----	H .35	H .23	H .31	H .42	H .51					10-----	1.28	1.34	1.41						
11-----										11-----	1.18	1.24	1.33	1.45					
12-----	H .21	H .30	H .42							12-----	1.17	1.25	1.34	1.45					
13-----	S .63	S .70	S .78	S .89	S .97	S .85	S .72	S .63	S .58	13-----	1.23	1.30	1.38	1.48					
14-----										14-----	1.16	1.24	1.33	1.43		1.41	1.30	1.21	1.12
15-----										15-----	1.18	1.26	1.35	1.46					
16-----										16-----	1.19	1.22	1.31	1.44					
17-----										17-----	1.17	1.25	1.34	1.44					
18-----										18-----	1.17	1.24	1.33	1.43					
19-----										19-----	1.14	1.21	1.31						
20-----										20-----									
21-----										21-----									
22-----										22-----									
23-----										23-----									
24-----	S .47	S .54	S .61	S .73	S .83	S .93	S .87	S .76	S .66	24-----									
25-----										25-----									
26-----	S .66	S .71	S .80	S .89	S .97	S .86	S .74	S .66	S .59	26-----									
27-----										27-----									
28-----	S .60	S .66	S .74	S .82						28-----									
Averages	.51	.36	.64	.75	.87	.81	.68	.58	.52	Averages	1.19	1.26	1.35	1.43	1.52	1.42	1.33	1.24	1.15

TUCSON, AZ										TUCSON, AZ									
Air mass										Air mass									
4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64	
1-----	.82	.92	1.05	1.21	1.38	1.14	.93	-----	-----	1-----	.82	.92	1.05	1.21	1.38	1.14	.93	-----	-----
2-----				1.13	1.40	1.14	.99	.82	.71	2-----				1.13	1.40	1.14	.99	.82	.71
3-----	.76	.86	.95	1.13	1.34	1.05	.84	.77	.65	3-----	.76	.86	.95	1.13	1.34	1.05	.84	.77	.65
4-----	.54	-----	-----	.92	1.19	1.00	.81	-----	-----	4-----	.54	-----	-----	.92	1.19	1.00	.81	-----	-----
5-----	.61	.71	.85	1.05	1.29	-----	-----	-----	-----	5-----	.61	.71	.85	1.05	1.29	-----	-----	-----	-----
6-----	.68	.77	.89	1.09	1.38	1.20	1.04	.91	.81	6-----	.68	.77	.89	1.09	1.38	1.20	1.04	.91	.81
7-----	.82	.92	1.05	1.20	1.43	1.19	1.03	.92	.79	7-----	.82	.92	1.05	1.20	1.43	1.19	1.03	.92	.79
8-----	.68	.78	.89	1.12	1.32	1.08	.90	-----	-----	8-----	.68	.78	.89	1.12	1.32	1.08	.90	-----	-----
9-----	.72	.82	.96	1.11	1.31	-----	-----	-----	-----	9-----	.72	.82	.96	1.11	1.31	-----	-----	-----	-----
10-----	.68	.82	.96	1.16	1.38	1.20	1.06	.97	.88	10-----	.68	.82	.96	1.16	1.38	1.20	1.06	.97	.88
11-----	.96	1.06	1.18	1.30	1.50	1.33	1.16	1.05	.96	11-----	.96	1.06	1.18	1.30	1.50	1.33	1.16	1.05	.96
12-----	.85	.92	1.03	1.18	1.41	1.23	1.04	.91	.80	12-----	.85	.92	1.03	1.18	1.41	1.23	1.04	.91	.80
13-----	.89	.99	1.10	1.27	1.41	-----	-----	-----	-----	13-----	.89	.99	1.10	1.27	1.41	-----	-----	-----	-----
14-----	-----	-----	-----	1.20	1.44	1.28	1.10	.99	-----	14-----	-----	-----	-----	1.20	1.44	1.28	1.10	.99	-----
15-----	.86	.96	1.05	1.22	1.39	-----	-----	-----	-----	15-----	.86	.96	1.05	1.22	1.39	-----	-----	-----	-----
16-----	.92	1.03	1.16	1.31	1.45	1.26	1.10	.97	.86	16-----	.92	1.03	1.16	1.31	1.45	1.26	1.10	.97	.86
17-----	.96	1.06	1.18	1.31	1.47	1.27	1.11	.97	.86	17-----	.96	1.06	1.18	1.31	1.47	1.27	1.11	.97	.86
18-----	.91	1.01	1.12	1.30	-----	1.19	1.01	.89	.80	18-----	.91	1.01	1.12	1.30	-----	1.19	1.01	.89	.80
19-----	.84	.97	1.10	1.26	1.43	1.24	1.06	.94	.84	19-----	.84	.97	1.10	1.26	1.43	1.24	1.06	.94	.84
20-----	.84	.93	1.06	1.23	1.35	-----	-----	-----	-----	20-----	.84	.93	1.06	1.23	1.35	-----	-----	-----	-----
21-----	.89	.99	1.10	1.25	1.39	1.22	-----	-----	-----	21-----	.89	.99	1.10	1.25	1.39	1.22	-----	-----	-----
22-----	.86	.96	1.07	1.24	1.39	1.22	1.07	.94	.84	22-----	.86	.96	1.07	1.24	1.39	1.22	1.07	.94	.84
23-----	.89	.98	1.09	1.24	1.40	1.25	1.07	.93	.84	23-----	.89	.98	1.09	1.24	1.40	1.25	1.07	.93	.84
24-----	.87	.97	1.09	1.25	1.43	1.21	1.06	.94	.82	24-----	.87	.97	1.09	1.25	1.43	1.21	1.06	.94	.82
25-----	.86	.96	1.08	1.24	1.40	1.23	1.08	.94	.85	25-----	.86	.96	1.08	1.24	1.40	1.23	1.08	.94	.85
26-----	.91	1.00	1.11	1.26	-----	1.25	1.07	.98	-----	26-----	.91	1.00	1.11	1.26	-----	1.25	1.07	.98	-----
27-----	.86	.98	1.09	1.25	1.39	1.21	1.03	.91	.80	27-----	.86	.98	1.09	1.25	1.39	1.21	1.03	.91	.80
28-----	.82	.92	1.06	1.22	1.37	1.08	.93	.81	.68	28-----	.82	.92	1.06	1.22	1.37	1.08	.93	.81	.68
29-----	-----	.86	1.02	-----	-----	-----	-----	-----	-----	29-----	-----	.86	1.02	-----	-----	-----	-----	-----	-----
30-----										30-----									
Averages	.82	.93	1.05	1.20	1.39	1.19	1.02	.92	.81	Averages	.82	.93	1.05	1.20	1.39	1.19	1.02	.92	.81

## NET RADIATION

Net radiation in langleys per day (8 a.m. to 6 p.m.) at Palmer, Alaska

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys	49	74	102	107	46	15	82	42	68	1	33	61	77	69	15	51	27	58	40	1	46	84	14	28	37	10	2	23	1	4	31	31

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

- 1 foot = 0.3048 meters
- °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$
- 1 inch = 25.4 millimeters
- 1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- o Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- † No Storm Data Report received for this State.
- ◇ Report Incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	GF	Ground Fog	K	Smoke	N	Sand
D	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

NET RADIATION: The measurement is made with a CSIRO PUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), September.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), September 1978

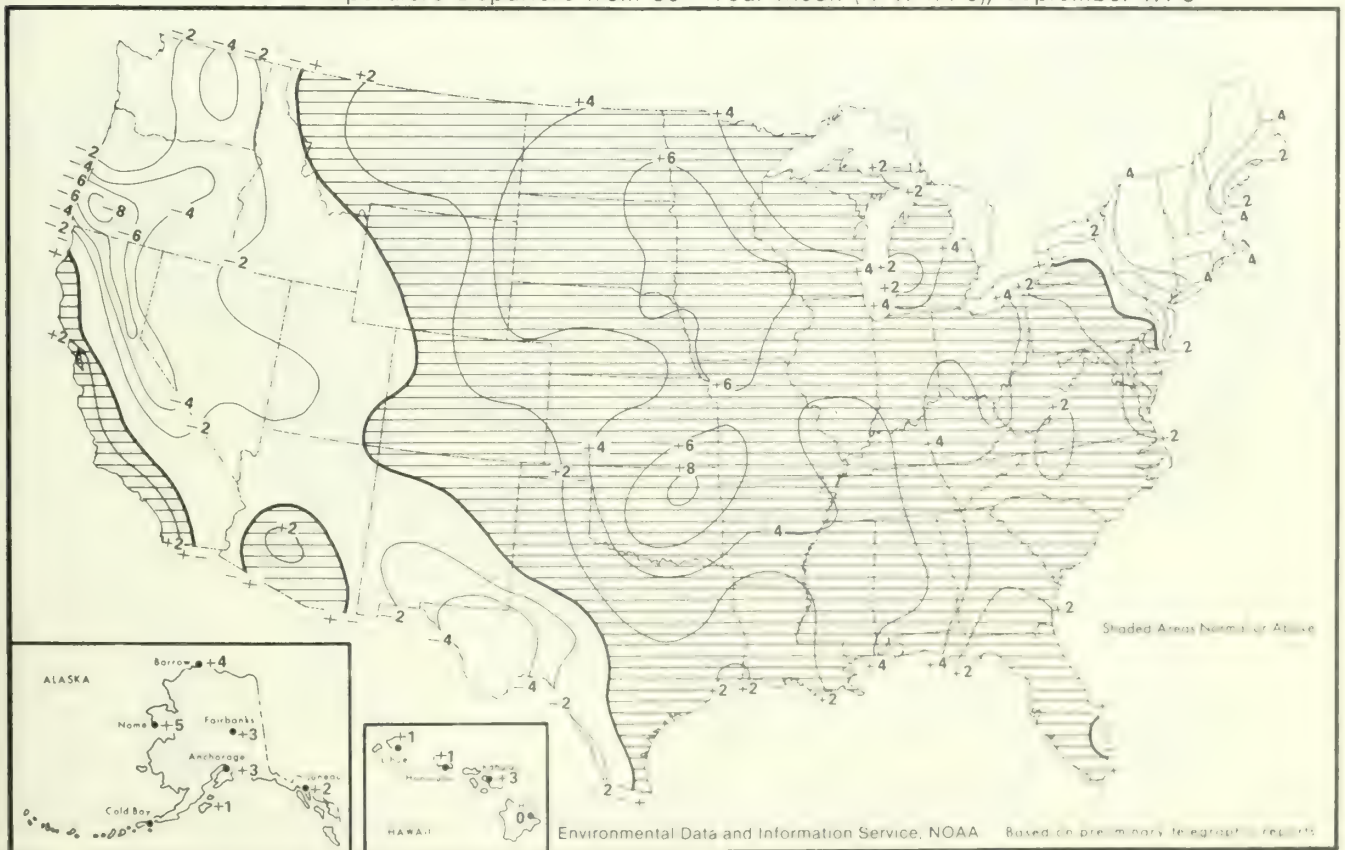
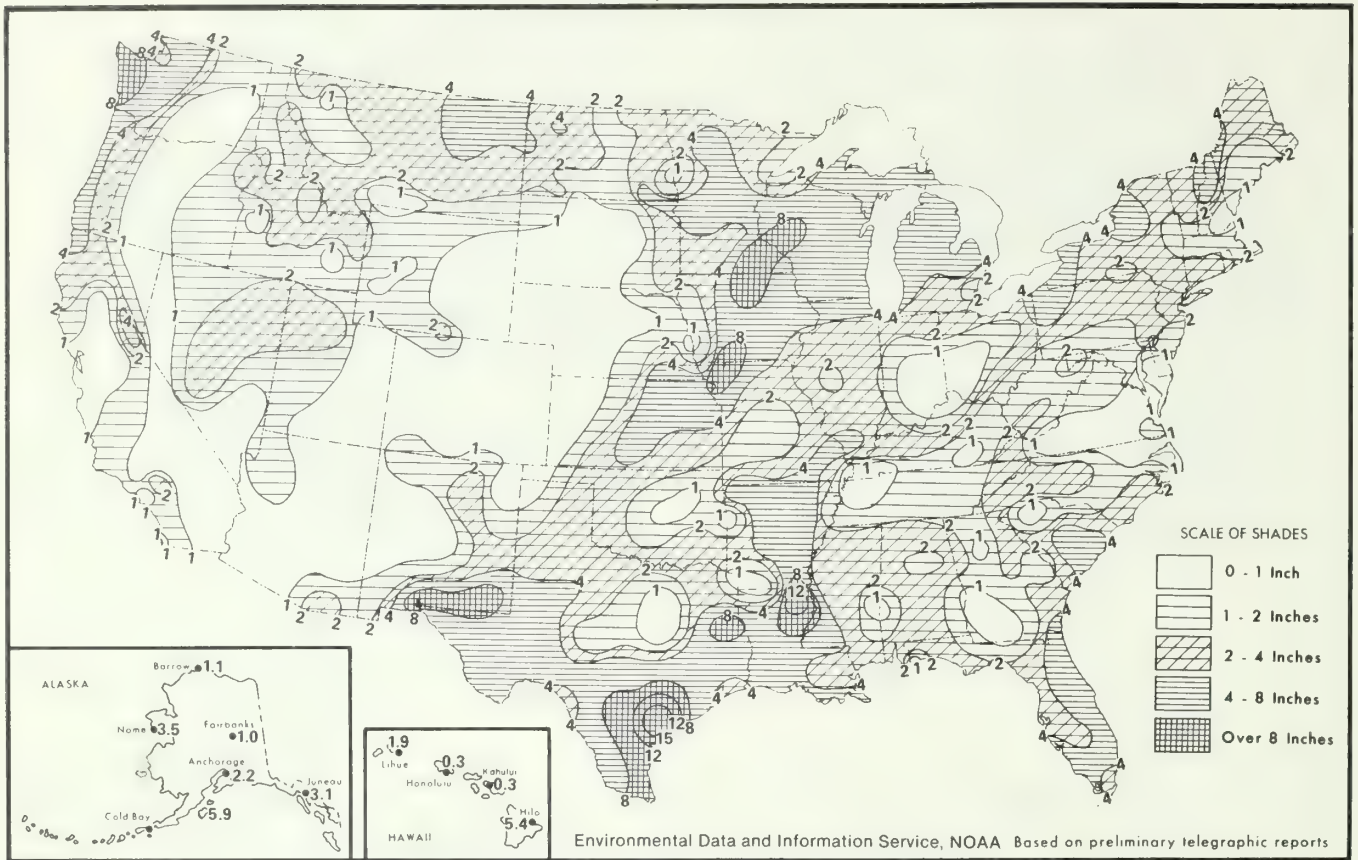


Chart II. A. Total Precipitation (Inches), September 1978



B. Percentage of Normal Precipitation, September 1978

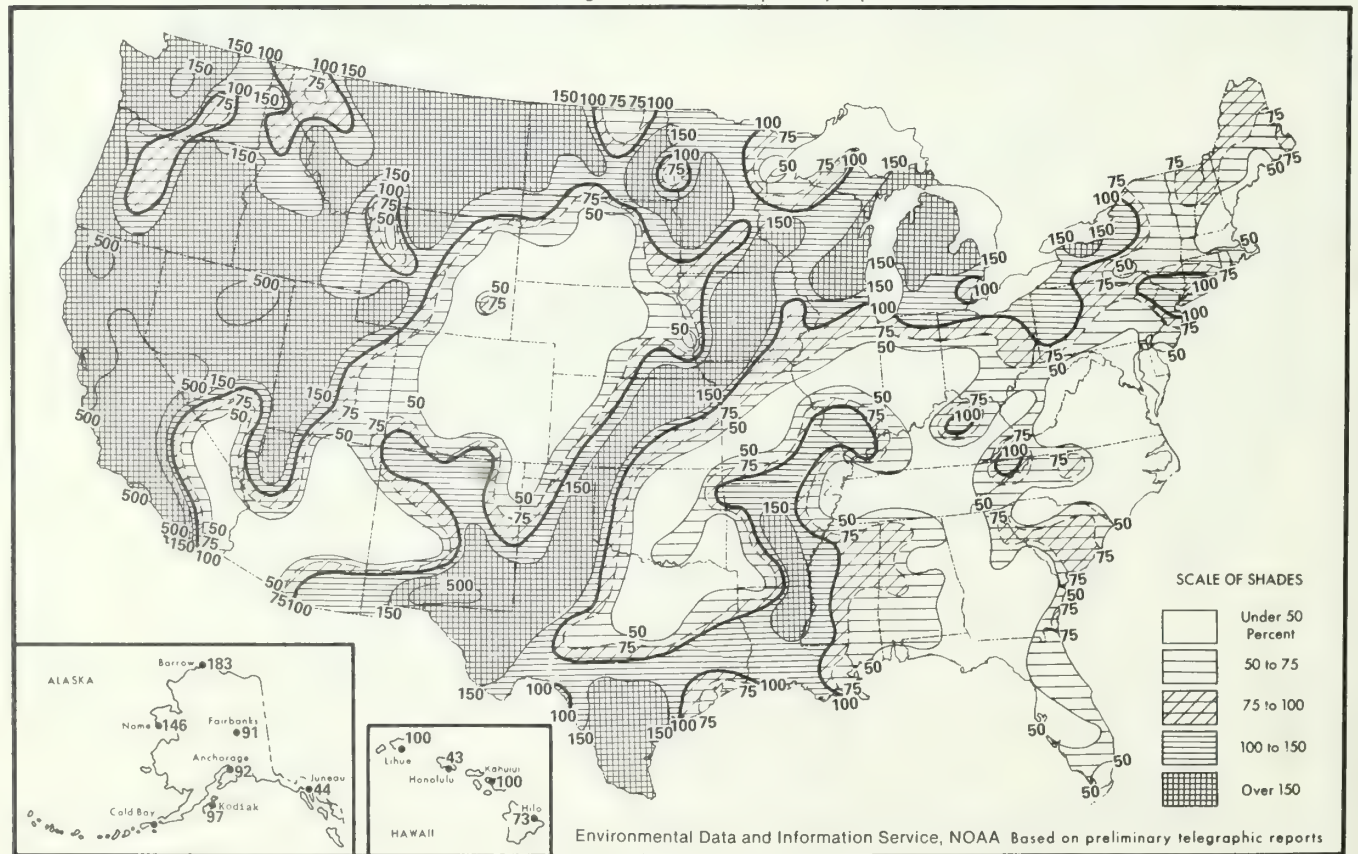




Chart III Tracks of Centers of Anticyclones at Sea Level, September 1978

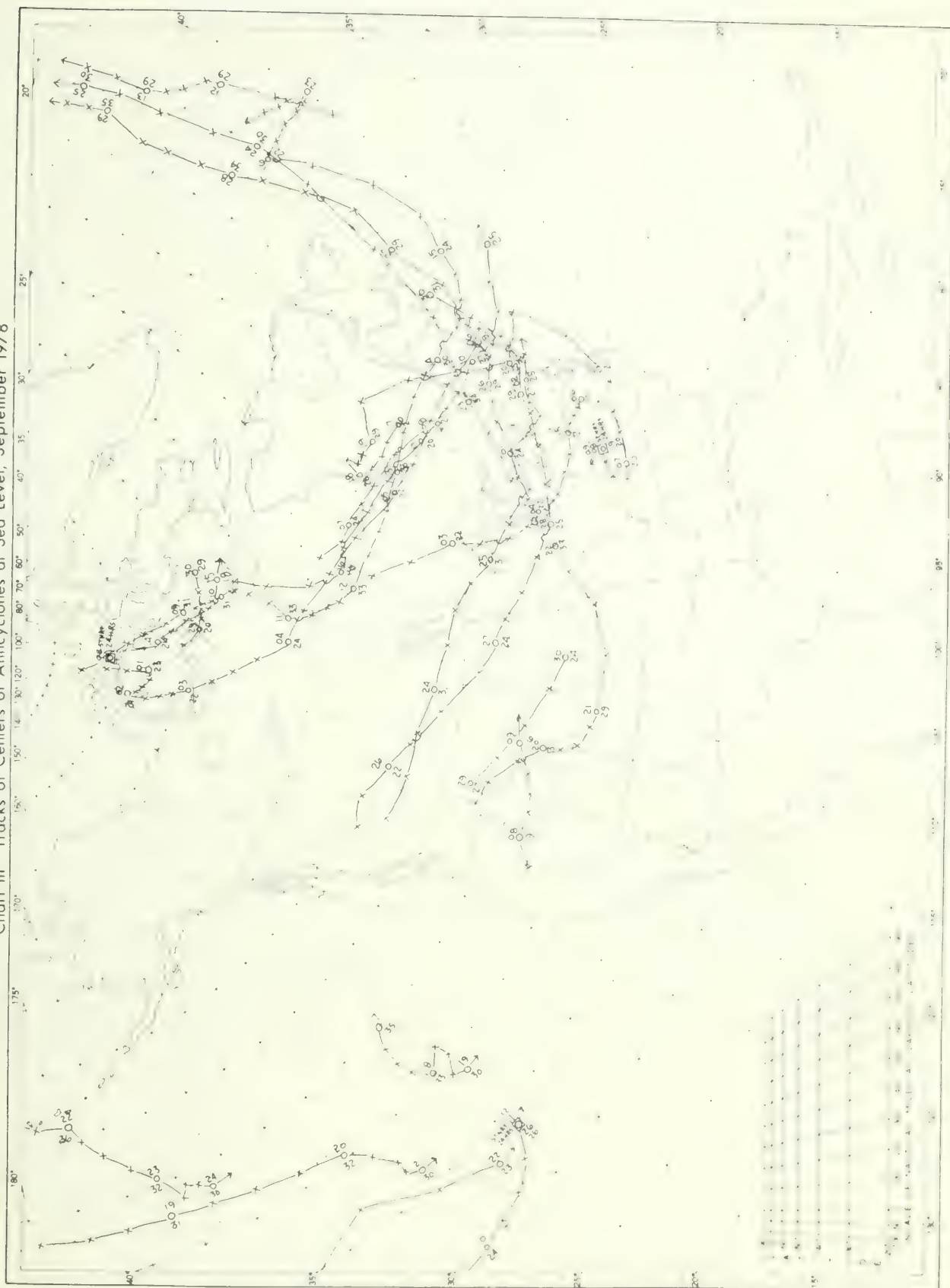
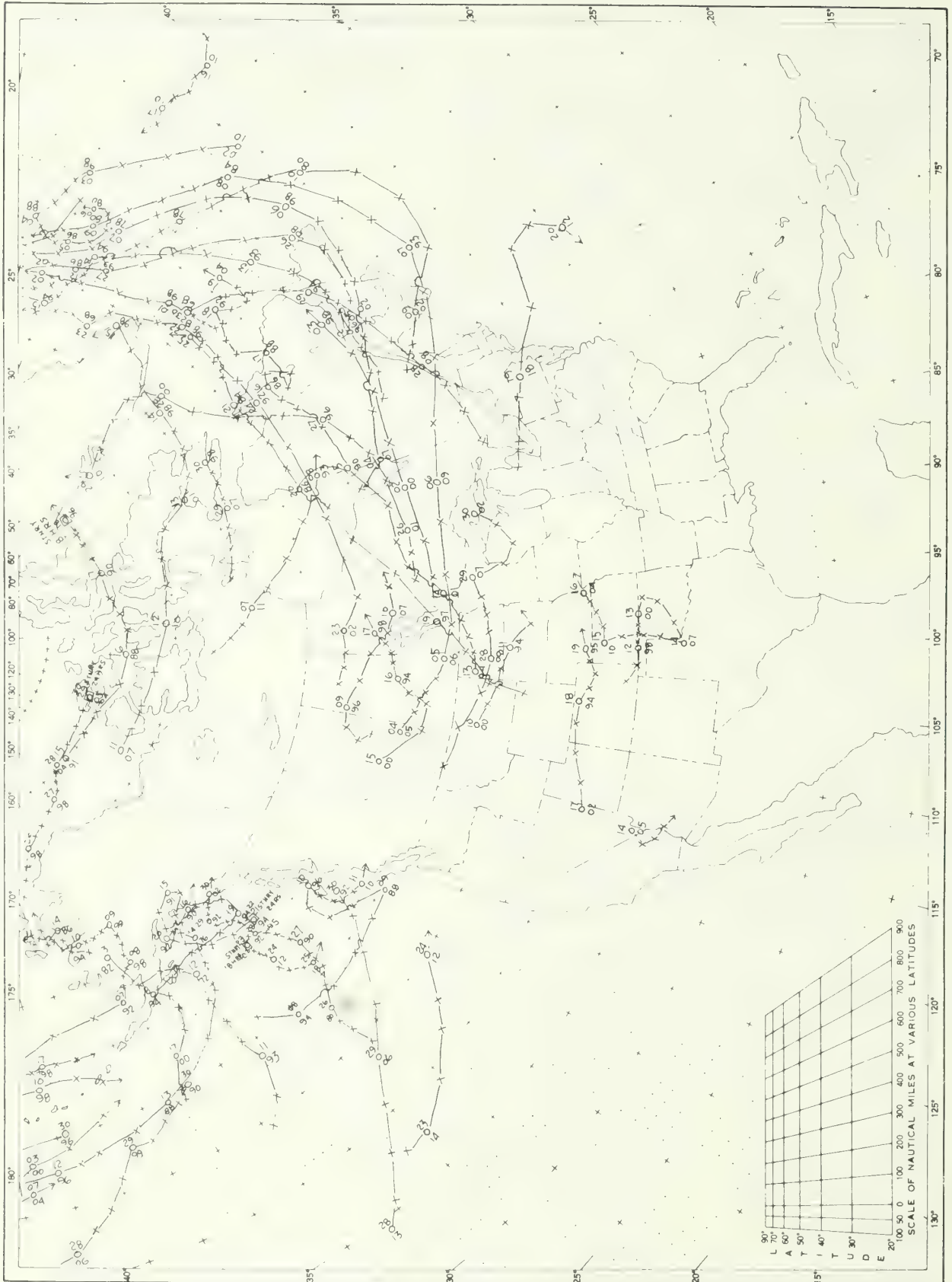




Chart IV Tracks of Centers of Cyclones at Sea Level September 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 'x's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.









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OCTOBER 1978

VOLUME 29

NUMBER 10

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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## MONTHLY SUMMARY SOLAR RADIATION DATA

The National Climatic Center has published the January 1977 issue of Monthly Summary Solar Radiation Data. This Department of Energy sponsored publication contains edited hourly totals, daily totals, and monthly means of total hemispheric (global) solar radiation on a horizontal surface for the new 38-station NOAA Solar Radiation Network. Data are shown in kilojoules per square meter for each hour Local Standard Time. The January 1977 issue contains measurements from 23 stations. Subsequent issues will include additional stations as they become operational. Monthly issues will be published as rapidly as possible in order to make up the backlog.

The subscription price is \$8.40 per year domestic, \$19.70 per year foreign, single copy price \$0.70 domestic, \$1.64 foreign. There is a minimum charge of \$2.00 for each order of shelf-stocked issues. Address requests to: Director, National Climatic Center, Federal Building, Asheville, NC 28801, or telephone (704) 258-2850, Ext. 683 (FTS 672-0683).

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

OCTOBER 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Early in the month a blast of cool air from Canada spread snow throughout the Rockies. The accumulation was well above normal in the central portion. Later a trough of low pressure brought moisture northward and spread showers, some very heavy, from southern California and Nevada eastward to western Texas. Most of the winter wheat area of Texas, Oklahoma, and Kansas had only light rain during the month which was well below normal. The southeastern United States continued very dry. Temperatures averaged generally cool in the East and warm in the West.

Unseasonably cool air from Canada moved into the northern Plains during the first week of October and spread into the Rockies and all of the Nation to the east. Only southern Florida was spared the cool spell. Freezing temperatures reached into the central Plains and the western portion of the Corn Belt. Average temperatures for the week dropped as much as 9° cooler than normal in Alabama. The West held above normal---6 to 9° warmer in central California. Significant rain was confined to the area east of the Rockies. Heavy rain deluged parts of Texas's Rio Grande Valley causing unusual flooding. The Southeast, except for southern Florida, again recorded little or no rain.

The second week was warm and dry from southern Louisiana to western Montana and westward. Exceptions included the far Northwest and an area in southwestern Texas where heavy rain continued. Warm temperatures in the West persisted with weekly averages as much as 12° above normal in California. Heading eastward, heavy rain fell in the southern Corn Belt from southern Missouri to the upper Ohio Valley. Some very welcome rain fell in the southeastern United States, but many of these dry areas recorded

little or no rain. The East remained cool as the freeze line dipped into North Carolina.

A change in the general weather pattern occurred during the week of the 16th-22d. Incursions of cool air from the north failed to move very far southward, and by the end of the week, chilled only the northern tier of States. A trough of low pressure began carrying moisture northward into the southwestern United States. Showers fell throughout the Southwest and spread slowly eastward into the Rockies. Snow fell in the Rockies, and rain extended into the central Plains. Light amounts of precipitation fell from the Great Lakes through New England. Southern and eastern Florida noted some heavy showers. The West's warm weather moved eastward through the Plains leaving only southern Texas and the area east of the Mississippi River cooler than normal.

In the last week of October, low pressure in the Southwest edged northeastward and triggered another outbreak of cool air from the north which moved rapidly southward and eastward. Showers continued in the Southwest and heavy showers accumulated over 2 inches in southwestern Texas. Moderate to heavy rain fell from central Texas through New England. Moderate showers covered Florida and light rain extended northward along the East Coast. Another low pressure system formed in the Southwest. Cool air invaded the Pacific Northwest, but the area from California through the northern Plains remained slightly warmer than normal. A new outbreak of cool air brought the freezing line all the way into Oklahoma and Tennessee, however, the Southeast and East Coast averaged warmer than normal.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Ozark 6 NNW	93	6	Valley Head	-4	12	2 Stations	2.40	23 Stations	.00
Alaska	2 Stations	62	6		-34	28		62.43	Port Clarence	D .07
Arizona	2 Stations	109	1	2 Stations	-28		Ruby Star Ranch	3.92		.13
Arkansas	2 Stations	93	21	White Mountain 2	26	27	Parker Reservoir	3.26	225 Stations	.00
California	2 Stations	110	1		31					
Colorado	2 Stations	93	2		0	26	Allenspark	3.65		.01
Connecticut	Stamford 5 N	80	23	2 Stations	1	28		4.46	Burlington	1.03
Delaware	2 Stations	84	18	Georgetown 5 SW	26	18	Lewes 1 SW	2.69	Georgetown 5 SW	.84
Florida	2 Stations	94	16		16		Royal Palm Ranger Station	9.65	2 Stations	.00
Georgia	Hawkinsville	95	6		24	18		1.80	17 Stations	.00
Hawaii	Puukohola Heiau 98.1	96	4	Mauna Kea Obs 111.2	26	16	Waikamoi 449	24.96	Puukohola Heiau 98.1	.21
Idaho	3 Stations	85	9		0	3		.81	30 Stations	.00
Illinois	Quincy Dam 21	88	22	Watseka 2 NW	21	25	Olney 2 S	4.14		.00
Indiana	2 Stations	84	21	Angola	21	24	Oolitic Purdue Exp Farm	6.43		1.05
Iowa	Le Mars	88	20	2 Stations	18	2		3.28	Rock Valley	.20
Kansas	2 Stations	96	1	3 Stations	22	17	Long Island	1.57		.00
Kentucky	Hickman 1 E	86	22		2	26	Tyrone Lock 5	5.75	Cumberland Falls St Pk	.96
Louisiana	Belah Fire Tower	93	22	3 Stations	30	18	Hosston		33 Stations	.00
Maine	2 Stations	78	23		10	30		6.58	Fort Kent	.00
Maryland	2 Stations	85	23	Oakland 1 SE	21	29		3.06	Patuxent River	.69
Massachusetts	Chester 2	81	22	Chester 2	10	18	Lanesboro	4.87		1.80
Michigan	Ontonagon 6 SE	85	27	Vanderbilt 11 ENE	13	29	Manistee	4.71	Saginaw FAA AP	.78
Minnesota	2 Stations	86	24	Thorhult 1 S	10	28	Caledonia 5 SE		Madison Sewage Plant	.00
Mississippi	7 Stations	90	22	3 Stations	28	18			21 Stations	.00
Missouri	2 Stations	94	12	4 Stations	26	20		5.33		.26
Montana	Crow Agency	87	10		-3	1	East Glacier	1.28		.00
Nebraska	Benkelman	9	2	Nenzel 20 S	1	24				.00
Nevada	Sunrise Manr Las Vegas	104			22		Pioche			.00
New Hampshire	2 Stations	82	22	Mount Washington	7	24	Pinkham Notch			2.62
New Jersey	3 Stations	83	20	2 Stations	20	19	Sandy Hook		Essex Falls Serv Bldg	.55
New Mexico	Redrock 1 NNE	94	2	Lago W 1	-2	26	Orogrande	3.20	Pasamonte	.15
New York	2 Stations	81	23	Lake Placid 2 S	11	17	Westfield 3 SW	7.62		.00
North Carolina	3 Stations	88	24	2 Stations	20	1	Hatteras	3.59	Swannanoa 2 E	.09
North Dakota	3 Stations	83	24	2 Stations	12	31	Hannah 2 N	1.63	2 Stations	.00
Ohio	Plymouth 2 WSW	82	1	2 Stations	21	25		7.99		1.20
Oklahoma	2 Stations	97	12	Lind 2 E	24	28	Perry	3.50		.00
Oregon	Coquille City	93	14	Seneca	-1	22	Nehalem 9 NE	2.35	36 Stations	.00
Pennsylvania	2 Stations	82	23	Austintown 2 W	13	30		6.42	Hyndman	.77
Puerto Rico	3 Stations	96	12	Cerro Maravilla	56	29	Pico Del Este	29.89	Borinquen AP	1.41
Rhode Island	Providence WSO AP	78	23	Kingston	18	18	North Foster 1 E	4.11	Block Island WSO AP	2.28
South Carolina	Manning 1 S	90	6	Longcreek	26	17		1.76	Springfield	.00
South Dakota	5 Stations	88	20	Presho 5 NW	10	23	Deadwood	1.05	3 Stations	.00
Tennessee	Kingston Springs 2 NNE	89	1	2 Stations	23	28		4.44	Chattanooga WSO AP	.32
Texas	3 Stations	98	3	Lipscomb	28	27	Mission 4 W	6.08	9 Stations	.00
Utah	Zion National Park	98	4	Hardware Ranch	9	26	Aneth Plant	1.01	28 Stations	.00
Vermont	2 Stations	78	28	Mount Mansfield	11	24	Mount Mansfield	5.89	Bellows Falls	2.46
Virginia	Richmond WSO AP	86	23	Burkes Garden	17	9	Driver 4 NE	3.29	2 Stations	.19
Virgin Islands	Christianssted Fort	92	9	2 Stations	68	27	All Saints	12.04	East Hill	4.16
Washington	Glenoma 1 W	84	6	2 Stations	12	26	Neah Bay 1 E	7.29	17 Stations	.00
West Virginia	Moorefield 2 SSE	84	22	2 Stations	17	28	Rowlesburg 1	5.05		.50
Wisconsin	6 Stations	81	22	Rice Lake	14	28	Two Rivers	3.65	South Pelican	.31
Wyoming	2 Stations	83	1	Old Faithful	-1	30		1.92	7 Stations	.00

CLIMATOLOGICAL DATA  
METRIC UNITS

OCTOBER 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation					Wind			No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Total	mm	Departure from normal	Greatest in 24 hours				With thunderstorms .25 mm. or more	Total	mm	Maximum depth on ground	Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)		Speed	Direction	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
												Max. 32.2 °C or above	Min. 0 °C or lower					Average dew point	Average relative humidity																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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## METRIC UNITS

OCTOBER 1978

[illegible]



CLIMATOLOGICAL DATA  
METRIC UNITS

OCTOBER 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation					Wind				No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Station #	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	With thunderstorms	Snow, ice pellets	Fastest mile (1.6 kilometers)		Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
											Max. 32.2 °C or above	Min. 0 °C or lower															mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	

## CLIMATOLOGICAL DATA

METRIC UNITS

OCTOBER 1978

State and Station	Elevation (ground)	Pressure				Temperature				Precipitation				Wind				No. of days (sunrise to sunset)			
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	Residual speed	Residual direction	Speed	Direction	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
		Station	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	m/s	m/s	m/s					



## CLIMATOLOGICAL DATA

METRIC UNITS

OCTOBER 1978

State and Station	Pressure			Temperature					Precipitation					Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)												
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Max. 32.2 °C or above	Min. 0 °C or lower	Average dew point	Average relative humidity	Total				Departure from normal	Greatest in 24 hours	With thunderstorms	Total	Snow, ice pellets	Residual speed	Residual direction	Fastest mile (1.6 kilometers)		Direction	Date	
																		Clear, 0-3	Partly cloudy, 4-7									Cloudy, 8-10	Speed			Direction
NORTH CAROLINA	652	ASHEVILLE	1020.3	21.6	4.7	13.2	-0.6	26.7	26+	-1.7	18	0	4	7.2	74	8	-75	6	54	33	11.2	35	14	21	6	1	2.0	82				
	2	CAPE HATTERAS	1019.0	21.9	13.1	17.5	-0.9	25.0	26+	3.9	19	0	0	13.3	77	80	-42	3	4	2	13.0	5	30	12	7	12	5.2	54				
	224	CHARLOTTE	1020.2	20.7	9.2	15.6	-0.9	28.3	23	3.3	19	0	0	8.3	67	30	-34	3	1	0	8.9	NE	24	18	9	4	5.9	81				
	273	GREENSBORO	1020.3	20.7	7.3	14.0	-1.1	27.2	23	1.7	23	0	0	6.3	73	32	-43	3	1	0	9.5	NE	24	17	7	4	4.0	70				
	132	RALEIGH	1020.0	22.5	8.1	15.3	-0.4	28.9	23	0.0	25	0	1	10.0	75	37	-34	3	1	0	34	W	26+	15	6	4	5.8	68				
	9	WILMINGTON	1019.4	24.2	11.1	17.7	-0.8	29.4	6	5.0	25	0	0	12.8	78	46	-54	2	0	1	14.8	W	1	17	4	6	4.2	78				
NORTH DAKOTA	502	BISMARCK	1017.3	15.3	0.2	7.8	-0.4	26.7	20	-6.9	31	0	14	0.6	66	11	-9	0	0	29	16.5	NW	4	11	7	13	5.7	60				
	273	FARGO	1015.3	14.7	1.3	8.0	-0.3	29.7	20	-0.1	31	0	13	0.6	61	3	-24	0	0	23	17.1	N	23+	7	6	15	6.3	60				
	579	WILLISTON	1016.7	15.5	0.3	8.0	0.4	29.4	10	-0.1	22	0	10	0.6	64	5	-17	0	0	25	17.9	NW	4	7	6	6.3	60					
OHIO	368	AKRON	1019.3	15.7	4.4	10.1	-1.8	25.4	22	-1.1	30+	0	3	3.9	69	66	5	19	22	9.4	22	25+	10	4	17	6.3	65					
	232	CINCINNATI	1019.8	17.5	6.2	11.8	-2.5	24.0	22	0.0	24	0	1	6.1	72	101	45	16	22	6.3	22	25+	9	3	19	6.9	42					
	237	CLEVELAND	1019.8	17.3	6.2	11.8	-0.3	25.0	22	-0.6	29	0	2	4.4	68	61	13	17	22	10.3	22	27+	9	3	19	5.9	58					
	247	COLUMBUS	1019.8	16.8	4.8	10.8	-1.5	25.0	22	0.0	24	0	0	5.6	71	63	13	25	22	11.2	22	25+	12	1	18	6.2	51					
MISSOURI	303	DAYTON	1019.4	17.4	4.8	11.1	-1.9	24.4	22	-1.7	24	0	3	3.9	67	14	74	32	12	10.3	22	25+	11	3	17	6.3	41					
	999	MANFIELD	1019.4	15.6	4.7	10.2	-2.4	23.9	22	-2.2	24	0	6	3.9	67	14	74	32	12	10.3	22	25+	11	3	17	6.3	41					
	204	TOLEDO	1018.5	16.4	3.3	9.9	-1.8	23.6	22	-2.0	24	0	8	3.9	69	42	-15	10	13	12.5	23	4	8	4	19	6.4	41					
	359	YOUNGSTOWN	1018.3	15.4	4.6	10.0	-1.4	23.9	22	-2.3	29	0	4	4.4	70	110	34	24	12	8.9	23	4	5	17	6.4	41						
OKLAHOMA	992	OKLAHOMA CITY	1019.2	26.0	10.3	18.2	1.3	35.0	2	3.3	14	6	0	6.1	50	24	-39	23	3	1	16	14.3	SW	25+	22	5	4	2.4	85			
	198	TULSA	1018.9	26.1	8.9	17.5	0.3	35.6	2	3.3	27	4	0	5.6	52	24	-54	12	4	1	19	11.2	SW	25	6	3	2.4	77				
OREGON	2	ASTORIA	1021.3	18.1	6.7	12.4	0.8	26.1	18	0.0	26	0	1	8.9	80	26	-47	15	7	0	0.6	8	10.7	20	6	10	9	12	5.4	69		
	126	BOZEMAN	1020.9	19.3	3.7	10.7	-1.0	28.0	13+	-1.2	32	0	13	7.2	79	0	-23	0	0	0	0.7	18.3	20	6	10	9	12	5.4	69			
	109	EUGENE	1019.6	24.2	3.5	13.8	1.9	31.1	13	-0.3	31	0	3	6.1	68	7	-34	0	3	0	0	7	23	19+	8	12	11	2.5	69			
	394	MEMPHIS	1022.1	18.4	3.5	10.9	-0.5	25.6	18	-0.9	31+	0	6	1.7	57	7	-32	1	0	0	0.4	7.2	30	14	17	3	4	4.9	69			
CALIFORNIA	452	PENDELTON	1021.1	19.4	5.8	12.6	0.5	25.6	18+	-0.3	31	0	2	6.3	77	9	-62	4	0	0	0.8	11.2	15	11	4	5	11	5.4	69			
	60	SALEM	1020.8	19.9	4.6	12.3	0.5	27.8	5	-0.6	32	0	5	6.7	72	9	-97	1	0	0	0.3	13.2	15	11	4	5	11	5.4	69			
	1169	SEXTON SUMMIT	1018.5	18.2	8.5	13.4	3.1	26.7	14	-1.7	30	0	2	2.8	53	1	-61	1	0	0	1.3	6	15.6	3	13	8	4	4.9	69			
PACIFIC AREA	110	GUAM TAGUAY	1011.9	30.1	22.8	26.5	0.4	31.7	19	20.0	21+	0	0	22.8	78	266	-99	63	26	0	6.2	SE	24	1	7	23	8.3	74				
	29	JOHNSTON	1011.9	28.9	23.6	27.3	0.3	30.2	14	23.9	31+	0	0	0	0	53	-35	24	1	0	0	17.0	SE	24	1	7	23	8.3	74			
	29	KOROR	1006.1	30.8	24.1	27.4	-0.3	32.2	27+	22.9	31+	0	0	0	0	510	190	113	27	0	1.9	SE	24	1	7	23	8.3	74				
	3	KUJALEIN	1008.5	30.8	25.3	28.1	0.1	32.8	19	22.8	24+	0	0	0	0	291	-13	57	21	0	2.0	SE	24	1	7	23	8.3	74				
HAWAII	3	MAJURO	1011.0	29.6	24.2	27.3	-0.1	31.7	21+	22.7	13	0	0	0	82	522	116	165	23	0	1.1	NE	24	1	7	23	8.3	74				
	3	PAGO PAGO	1011.0	29.6	23.8	26.7	0.4	31.1	31+	22.2	3	0	0	0	0	255	-52	67	26	3	0	3.5	NE	24	1	7	23	8.3	74			
	37	PUNAPE R	1011.0	31.8	22.5	27.2	0.4	33.3	12+	21.1	20	22	0	0	0	431	14	74	27	5	1.3	NE	24	1	7	23	8.3	74				
	2	TRUK MHN ISLAND	1011.0	30.9	24.4	27.7	0.4	32.8	6	23.3	31+	0	0	0	0	539	199	131	25	2	0	3.9	NW	9	1	7	23	8.3	74			
PENNSYLVANIA	13	WAKE	1013.0	31.4	26.1	28.8	1.2	32.8	23+	23.8	31+	13	0	25.0	83	78	-60	26	2	0	8.0	SE	31	0	11	5.9	60	17				
		YAP R	1005.4	30.5	22.6	26.6	-0.9	31.7	26+	21.1	23+	0	0	0	0	460	144	91	28	0	0.8	SW	9	0	2	29	9.4	17				
ALABAMA	118	ALLANTON	1019.8	17.6	5.6	11.6	-0.7	24.2	23	-1.7	18	0	2	6.7	73	50	-20	23	13	0	1.1	27	10.3	34	24+	12	11	8	4.9	71		
	223	ESTER	1019.8	13.9	6.2	12.6	-1.3	24.2	23	-2.3	17	0	0	7.8	73	148	65	34	17	1	0	10.3	30	8	14	10	8	4.9	71			
	103	HARRISBURG	1020.0	18.6	7.2	13.1	-0.1	27.3	23+	0.0	23	0	1	7.8	73	24	-32	28	8	1.2	22	10.3	30	8	14	10	8	4.9	71			
	2	PHILADELPHIA	1019.5	18.6	6.7	13.1	0.1	27.3	23	0.0	23	0	0	7.8	73	24	-32	28	8	1.2	22	10.3	30	8	14	10	8	4.9	71			
PITTSBURGH	947	PITTSBURGH	1019.9	15.2	3.8	8.5	-2.3	23.6	12	-1.7	18	0	5	5.4	72	85	-14	34	13	0	1.0	22	10.3	25	4	11	7	13	5.7	69		
	283	SCRANTON	1019.4	15.9	4.8	10.4	-2.1	23.3	22+	-1.7	18	0	3	5.0	72	85	-14	34	13	0	1.0	22	10.3	25	4	11	7	13	5.7	69		
	160	WILLIAMSPORT	1019.5	16.9	5.9	11.4	-0.4	23.9	12	-1.1	18	0	3	6.7	75	70	-11	15	1	0	0.5	27	10.3	15	4	11	16	6.8	69			
RHODE ISLAND	34	BLOCK ISLAND		15.7	8.9	12.3	-0.7	20.6	23+	2.2	18	0	0			58	-15	36	8													



## CLIMATOLOGICAL DATA

METRIC UNITS

OCTOBER 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)			Sky cover, tenths (sunrise to sunset)												
		Station ID	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	No. of days		Average relative humidity	Total	mm	Departure from normal	Greatest in 24 hours	No. of days		Total	mm		With thunderstorms	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10		
										Max 32.2 °C or above	Min. 0 °C or lower						25 mm. or more	Snow, ice pellets															
																																°C	°C
RHODE ISLAND PROVIDENCE	16	1016.6	1018.9	16.3	5.3	10.8	-1.2	25.6	23	-2.2	31+	0	4	5.6	74	82	-1	26	0	0	0	1.5	27	10.7	20	25	15	7	9	4.6	76	Possible sunshine	
	12	1017.6	1019.6	25.4	12.1	18.7	-0.2	30.6	27	3.3	14	0	0	12.8	74	5	-73	5	1	0	0	1.6	2	9.8	26	6	13	9	4	4.6	64		
	3	1017.6	1019.6	25.4	12.1	18.7	-0.2	30.6	27	3.3	14	0	0	12.8	74	5	-73	5	1	0	0	1.6	2	9.8	26	6	13	9	4	4.6	64		
	65	1011.5	1013.6	26.0	9.4	17.7	-0.2	31.1	27	1.1	16	0	0	8.3	62	20	-45	15	3	1	0	0	0.6	2	8.0	34	1	16	10	5	3.6	88	
	297	985.1	1013.8	22.8	8.8	15.8	-0.7	27.8	5	2.2	19	0	0	7.8	65	21	-60	21	2	2	0	0	0.8	36	9.8	N	20	22	6	3	2.4	87	
SOUTH CAROLINA CHARLESTON	395			16.4	0.7	8.6	-0.3	28.9	20	-9.4	21	0	15	0.0	59	2	-20	1	3	0	0	1.5	28	16.5	NW	24	10	11	10	5.5	71		
	964			16.8	0.3	8.6	-1.2	27.8	20	-7.8	23	0	15	0.0	59	3	-34	3	2	0	0	3.0	33	20.1	NW	4	14	11	8	4.5	78		
	432			16.3	1.3	8.8	-1.3	26.7	1	-7.2	23	0	12	1.7	64	4	-35	2	5	0	0	1.7	28	13.0	35	25+	12	8	11	5.2	72		
	459			21.9	5.0	13.5	-0.9	27.8	13	-1.7	9	0	2	5.0	64	15	-42	4	5	1	0	0.8	29	7.2	25	26+	17	6	5	3.2	76		
	203			22.8	7.2	15.0	-1.0	28.3	13+	0.6	18	0	0	7.8	68	8	-67	21	5	0	0	0.5	35	9.4	34	14	19	7	5	3.2	90		
TEXAS AUSTIN	182			27.4	1.6	24.0	-0.2	31.7	1	1.7	15	0	0	16.2	61	35	-21	5	0	1	0	0.7	33	8.0	2	16+	16	0	5	3.1	93		
	12			29.6	19.1	24.9	-0.4	32.2	13+	1.3	15	4	0	18.9	76	113	-20	5	0	2	0	0.2	34	8.0	31	26	13	11	7	4.2	70		
	103			28.0	12.9	20.5	-0.7	34.4	2	6.7	27	5	0	7.8	49	24	-54	13	3	2	0	0.8	18	10.3	1	13	21	6	4	2.6	77		
	333			26.8	14.8	20.8	-0.3	32.6	5	10.0	15	2	0	13.9	69	24	-24	13	3	2	0	0.9	19	13	13	21	10	9	12	5.7	86		
	1192			25.9	9.6	17.0	-0.2	33.9	2	3.9	27	2	0	8.3	61	58	-38	33	0	3	0	0.8	11	15.6	27	21	20	7	4	2.7	77		
UTAH SALT LAKE CITY	29			23.8	20.1	23.0	-0.5	31.1	1	13.6	20+	6	0	13.3	71	8	-64	9	1	1	0	1.3	19	12.9	5	16+	11	15	5	4.7	71		
	492			23.4	10.0	16.7	0.6	31.7	12	4.4	26	0	0	7.2	59	27	-25	21	3	1	0	2.1	15	12.5	4	22	14	7	3	3.7	80		
	862			22.8	9.7	16.3	-2.5	30.8	11	5.3	18	4	0	13.9	67	67	-58	1	3	1	0	1.3	18	9	4	13	18	7	6	3.6	71		
	580			25.0	11.3	22.2	-1.4	31.1	11	5.0	15	0	0	10.6	66	11	-37	7	0	0	0	1.8	16	11.2	18	1	12	8	5	3.9	60		
	240			27.1	14.4	20.7	-0.7	31.1	1	5.6	15	0	0	12.8	66	11	-37	7	0	0	0	1.8	16	11.2	18	1	12	8	5	3.9	60		
WASHINGTON SEATTLE	32			28.1	15.6	21.9	-0.4	32.2	11	6.7	27	6	0	11.1	59	47	-17	30	4	2	0	1.4	17	13.0	46	15	10	11	10	5.4	70		
	153			28.3	13.4	20.8	-0.2	35.0	11	6.7	27	6	0	11.1	59	47	-17	30	4	2	0	1.4	17	13.0	46	15	10	11	10	5.4	70		
	303			26.9	10.2	18.6	-0.3	34.4	12	3.3	27	6	0	8.9	59	27	-41	23	4	2	0	1.5	16	13.0	1	13	20	6	5	2.8	73		
	1538			21.8	1.2	11.5	1.1	30.6	1	-5.0	24	0	1+	1.1	49	8	-11	8	2	0	0	0.5	17	13.4	NW	6	19	7	5	2.9	83		
	1286			21.6	4.6	13.1	1.7	26.7	9	-2.2	31	0	2	1.1	49	7	-20	7	0	0	0	0.5	17	13.6	5	26	20	5	6	3.1	87		
VERMONT BURLINGTON	101			12.5	3.5	8.0	-1.3	21.7	22	-6.1	30	0	7	1.1	63	94	24	38	11	0	0	1.6	19	15.6	5	25	3	6	22	7.8	35		
	279			20.0	6.2	13.1	-1.3	28.3	23	-1.7	25	0	3	11.1	75	21	-45	11	6	0	0	2.7	28	11.6	SW	26	19	5	7	3.8	73		
	7			21.7	10.3	16.0	-0.5	27.8	23	2.8	25	0	0	11.1	75	38	-40	25	5	0	0	3.0	2	11.2	12	24	8	14	9	4.5	76		
	50			21.8	7.4	14.6	-0.6	30.0	23	-1.1	25	0	1	10.0	77	31	-44	23	9	0	0	0.5	30	12.3	NE	23	13	9	9	4.5	76		
	350			19.9	4.4	12.2	-2.1	27.8	26	-2.8	9	0	4	5.0	63	20	-41	17	4	2	0	1.2	31	10.3	31	6	15	7	9	4.2	70		
WASHINGTON SEATTLE	3			19.4	9.2	14.3	-1.4	25.0	6	2.8	18	0	0	8.9	59	27	-41	23	4	2	0	1.5	16	13.0	1	13	20	6	5	2.8	73		
	59			17.2	3.4	10.6	0.0	28.9	6	-2.2	31+	0	5	6.7	82	20	-114	17	8	0	0	0.4	20	7.2	20	10	3	13	15	7.0	44		
	54			17.2	8.7	14.7	0.3	22.6	6	2.2	31	0	3	8.3	86	22	-73	12	9	0	0	0.4	17	10.1	SW	28	8	7	16	6.6	44		
	6			16.0	8.7	14.7	0.3	22.6	6	2.2	31	0	0	8.3	86	22	-73	12	9	0	0	0.4	17	10.1	SW	28	8	7	16	6.6	44		
	6			16.0	8.7	14.7	0.3	22.6	6	2.2	31	0	0	8.3	86	22	-73	12	9	0	0	0.4	17	10.1	SW	28	8	7	16	6.6	44		

## METRIC UNITS

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## HEATING DEGREE DAYS

(Base 65°F.)

OCTOBER 1978

State and Station	Current season		Normals	July through this month	State and Station	Current season		Normals	July through this month	State and Station	Current season		Normals	July through this month	State and Station	Current season		Normals	July through this month
	This month	Period July through this month				This month	Period July through this month				This month	Period July through this month				This month	Period July through this month		
ALABAMA					ALABAMA					ALABAMA					ALABAMA				
BIRMINGHAM	144	154	143		BIRMINGHAM	144	154	143		BIRMINGHAM	144	154	143		BIRMINGHAM	144	154	143	
HUNTSVILLE	191	191	170		HUNTSVILLE	191	191	170		HUNTSVILLE	191	191	170		HUNTSVILLE	191	191	170	
MOBILE	70	70	39		MOBILE	70	70	39		MOBILE	70	70	39		MOBILE	70	70	39	
MONTGOMERY	72	72	93		MONTGOMERY	72	72	93		MONTGOMERY	72	72	93		MONTGOMERY	72	72	93	
ALASKA					ALASKA					ALASKA					ALASKA				
ANCHORAGE	702	1538	1945		ANCHORAGE	702	1538	1945		ANCHORAGE	702	1538	1945		ANCHORAGE	702	1538	1945	
ANNETTE	519	1261	1333		ANNETTE	519	1261	1333		ANNETTE	519	1261	1333		ANNETTE	519	1261	1333	
BARRON	1793	4375	4244		BARRON	1793	4375	4244		BARRON	1793	4375	4244		BARRON	1793	4375	4244	
BARTER ISLAND	1742	4219	4073		BARTER ISLAND	1742	4219	4073		BARTER ISLAND	1742	4219	4073		BARTER ISLAND	1742	4219	4073	
BETHEL	1141	2383	2392		BETHEL	1141	2383	2392		BETHEL	1141	2383	2392		BETHEL	1141	2383	2392	
BETTLES	1521	2646	2787		BETTLES	1521	2646	2787		BETTLES	1521	2646	2787		BETTLES	1521	2646	2787	
BIG DELTA	1222	2076	2379		BIG DELTA	1222	2076	2379		BIG DELTA	1222	2076	2379		BIG DELTA	1222	2076	2379	
COLD BAY	746	2043	2205		COLD BAY	746	2043	2205		COLD BAY	746	2043	2205		COLD BAY	746	2043	2205	
FAIRBANKS	1286	2069	2304		FAIRBANKS	1286	2069	2304		FAIRBANKS	1286	2069	2304		FAIRBANKS	1286	2069	2304	
GULKANA	995	1853	2446		GULKANA	995	1853	2446		GULKANA	995	1853	2446		GULKANA	995	1853	2446	
HOMER	741	1959	2181		HOMER	741	1959	2181		HOMER	741	1959	2181		HOMER	741	1959	2181	
JUNEAU	612	1599	1813		JUNEAU	612	1599	1813		JUNEAU	612	1599	1813		JUNEAU	612	1599	1813	
KING SALMON	876	1953	2177		KING SALMON	876	1953	2177		KING SALMON	876	1953	2177		KING SALMON	876	1953	2177	
KODIAK	640	1679	1854		KODIAK	640	1679	1854		KODIAK	640	1679	1854		KODIAK	640	1679	1854	
KOTZEBUE	1379	2392	2814		KOTZEBUE	1379	2392	2814		KOTZEBUE	1379	2392	2814		KOTZEBUE	1379	2392	2814	
MC GRATH	1291	2276	2443		MC GRATH	1291	2276	2443		MC GRATH	1291	2276	2443		MC GRATH	1291	2276	2443	
NOME	1171	2358	2771		NOME	1171	2358	2771		NOME	1171	2358	2771		NOME	1171	2358	2771	
ST. PAUL ISLAND	792	2370	2621		ST. PAUL ISLAND	792	2370	2621		ST. PAUL ISLAND	792	2370	2621		ST. PAUL ISLAND	792	2370	2621	
TALKEETNA	942	1931	2129		TALKEETNA	942	1931	2129		TALKEETNA	942	1931	2129		TALKEETNA	942	1931	2129	
UNALAKLEET					UNALAKLEET					UNALAKLEET					UNALAKLEET				
VALDEZ	870	1979	2174		VALDEZ	870	1979	2174		VALDEZ	870	1979	2174		VALDEZ	870	1979	2174	
YAKUTAT	647	1806	1984		YAKUTAT	647	1806	1984		YAKUTAT	647	1806	1984		YAKUTAT	647	1806	1984	
ARIZONA					ARIZONA					ARIZONA					ARIZONA				
FLAGSTAFF	445	798	934		FLAGSTAFF	445	798	934		FLAGSTAFF	445	798	934		FLAGSTAFF	445	798	934	
PHOENIX	1	1	17		PHOENIX	1	1	17		PHOENIX	1	1	17		PHOENIX	1	1	17	
TUCSON	15	15	29		TUCSON	15	15	29		TUCSON	15	15	29		TUCSON	15	15	29	
WINSLLOW	140	217	271		WINSLLOW	140	217	271		WINSLLOW	140	217	271		WINSLLOW	140	217	271	
YUMA	0	0	0		YUMA	0	0	0		YUMA	0	0	0		YUMA	0	0	0	
ARKANSAS					ARKANSAS					ARKANSAS					ARKANSAS				
FORT SMITH	173	133	135		FORT SMITH	173	133	135		FORT SMITH	173	133	135		FORT SMITH	173	133	135	
LITTLE ROCK	118	118	148		LITTLE ROCK	118	118	148		LITTLE ROCK	118	118	148		LITTLE ROCK	118	118	148	
ND. LITTLE ROCK	126	126	148		ND. LITTLE ROCK	126	126	148		ND. LITTLE ROCK	126	126	148		ND. LITTLE ROCK	126	126	148	
CALIFORNIA					CALIFORNIA					CALIFORNIA					CALIFORNIA				
BAKERSFIELD	9	9	54		BAKERSFIELD	9	9	54		BAKERSFIELD	9	9	54		BAKERSFIELD	9	9	54	
BISHOP	145	259	305		BISHOP	145	259	305		BISHOP	145	259	305		BISHOP	145	259	305	
BLUE CANYON	198	607	534		BLUE CANYON	198	607	534		BLUE CANYON	198	607	534		BLUE CANYON	198	607	534	
FUREKA U	307	1037	1099		FUREKA U	307	1037	1099		FUREKA U	307	1037	1099		FUREKA U	307	1037	1099	
FRESNO	30	36	90		FRESNO	30	36	90		FRESNO	30	36	90		FRESNO	30	36	90	
LONG BEACH	4	4	54		LONG BEACH	4	4	54		LONG BEACH	4	4	54		LONG BEACH	4	4	54	
LOS ANGELES	5	6	134		LOS ANGELES	5	6	134		LOS ANGELES	5	6	134		LOS ANGELES	5	6	134	
LOS ANGELES U	7	7	40		LOS ANGELES U	7	7	40		LOS ANGELES U	7	7	40		LOS ANGELES U	7	7	40	
MT. SHASTA R	348	809	460		MT. SHASTA R	348	809	460		MT. SHASTA R	348	809	460		MT. SHASTA R	348	809	460	
OAKLAND	174	186	348		OAKLAND	174	186	348		OAKLAND	174	186	348		OAKLAND	174	186	348	
RED BLUFF	17	18	82		RED BLUFF	17	18	82		RED BLUFF	17	18	82		RED BLUFF	17	18	82	
SACRAMENTO	51	62	106		SACRAMENTO	51	62	106		SACRAMENTO	51	62	106		SACRAMENTO	51	62	106	
SANDRIDGE R	178	292	262		SANDRIDGE R	178	292	262		SANDRIDGE R	178	292	262		SANDRIDGE R	178	292	262	
SAN DIEGO	0	0	0		SAN DIEGO	0	0	0		SAN DIEGO	0	0	0		SAN DIEGO	0	0	0	
SAN FRANCISCO	143	351	380		SAN FRANCISCO	143	351	380		SAN FRANCISCO	143	351	380		SAN FRANCISCO	143	351	380	
SAN FRANCISCO U	138	514	604		SAN FRANCISCO U	138	514	604		SAN FRANCISCO U	138	514	604		SAN FRANCISCO U	138	514	604	
SANTA MARIA	139	350	467		SANTA MARIA	139	350	467		SANTA MARIA	139	350	467		SANTA MARIA	139	350	467	
STOCKTON	33	36	88		STOCKTON	33	36	88		STOCKTON	33	36	88		STOCKTON	33	36	88	
COLORADO					COLORADO					COLORADO					COLORADO				
ALAMOSA	692	1069	1093		ALAMOSA	692	1069	1093		ALAMOSA	692	1069	1093		ALAMOSA	692	1069	1093	
COLORADO SPRINGS	400	566	633		COLORADO SPRINGS	400	566	633		COLORADO SPRINGS	400	566	633		COLORADO SPRINGS	400	566	633	
DENVER	346	482	528		DENVER	346	482	528		DENVER	346	482	528		DENVER	346	482	528	
GRAND JUNCTION	313	414	384		GRAND JUNCTION	313	414	384		GRAND JUNCTION	313	414	384		GRAND JUNCTION	313	414	384	
PUEBLO	347	412	390		PUEBLO	347	412	390		PUEBLO	347	412	390		PUEBLO	347	412	390	
CONNECTICUT					CONNECTICUT					CONNECTICUT					CONNECTICUT				
BRIDGEPORT	290	386	303		BRIDGEPORT	290	386	303		BRIDGEPORT	290	386	303		BRIDGEPORT	290	386	303	
HARTFORD	449	772	507		HARTFORD	449	772	507		HARTFORD	449	772	507		HARTFORD	449	772	507	
DELAWARE					DELAWARE					DELAWARE					DELAWARE				
WILMINGTON	337	403	284		WILMINGTON	337	403	284		WILMINGTON	337	403	284		WILMINGTON	337	403	284	
DIST. OF COLUMBIA					DIST. OF COLUMBIA					DIST. OF COLUMBIA					DIST. OF COLUMBIA				
WASHINGTON DULLES	349	407	334		WASHINGTON DULLES	349	407	334		WASHINGTON DULLES	349	407	334		WASHINGTON DULLES	349	407	334	
WASHINGTON NATIONAL	192	201	204		WASHINGTON NATIONAL	192	2												



(Base 65°F.)

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[illegible]

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## Average monthly values

AN

POISE, ID										BROWNSVILLE, LA										* BROWNSVILLE, TX										BUFFALO, NY										CAPE HATTERAS, NC									
920 MH										1018 MH										1016 MH										992 MH										1018 MH									
5FL	31		871	6.2	-3.3	15	1.6	31		1	20.0	16.6	03	3.0	31	7	19.9	18.0	01	-6	31	218	7.2	4.6	22	2.1	31	4	15.9	13.5	01	3.4																	
1000								31		155	21.0	14.4	04	4.3	31	144	22.8	19.1	06	1.2	5	245	3.7	-2.0		31		161	17.5	12.1	01	4.2																	
750								31		598	18.2	11.1	05	4.0	31	590	19.8	16.4	10	2.8	31	575	7.4	3.5	25	5.5	31	598	14.7	10.1	36	3.6																	
400	31	1.051	10.8	-2.1	2.0		2	31	1.059	15.1	8.2	06	3.0	31	1.055	17.1	11.9	11	2.8	31	1.018	5.1	4	26	7.2	31	1.053	11.8	5.3	35	2.1																		
350	31	1.528	11.1	-5.4	3.2	1.7	31	1.547	12.6	2.0	04	2.6	31	1.542	14.9	6.0	12	2.5	31	1.483	2.9	-3.5	27	8.6	31	1.530	8.9	5.3	29	3.5																			
300	31	2.032	8.7	-7.9	3.0	2.8	31	2.048	11.2	2.0	06	3.1	31	2.054	12.7	1.7	22	4.6	31	1.972	2.4	-3.9	26	9.5	31	2.022	12.4	6.3	29	0.9																			
250	31	2.566	6.1	-10.0	2.9	4.4	31	2.584	8.8	-0.1	34	2.6	31	2.591	10.3	-6.9	09	1.6	31	2.490	-1.1	-10.8	26	11.0	31	2.564	5.9	-8.0	26	6.7																			
700	31	3.125	2.7	-12.2	2.9	6.3	31	3.155	6.3	-11.0	32	3.2	31	3.165	7.0	-5.7	02	7.3	31	3.038	-3.4	-16.1	27	12.8	31	3.126	3.1	-11.2	26	9.0																			
650	31	3.721	-4.4	-14.2	2.9	7.0	31	3.759	-2.9	-14.6	31	3.7	31	3.771	4.0	-9.3	29	3.1	31	3.621	-6.1	-20.3	27	13.8	31	3.723	3	-15.6	26	10.5																			
600	31	4.357	-4.4	-17.7	2.9	7.9	31	4.402	-1.0	-15.9	30	4.3	31	4.417	1.1	-11.8	27	1.8	31	4.244	-9.5	-23.4	27	15.3	31	4.361	-3.1	-20.0	26	12.0																			
550	31	5.036	-9.0	-23.0	2.9	9.0	31	5.091	-5.4	-19.9	29	5.3	31	5.109	-3.8	-17.0	27	2.4	31	4.911	-13.9	-27.3	27	16.7	31	5.044	-7.4	-24.0	26	14.0																			
500	31	5.767	-13.5	-28.5	2.9	10.1	31	5.832	-10.1	-26.1	28	7.0	31	5.856	-7.2	-22.9	27	4.6	31	5.628	-18.4	-33.0	27	17.4	31	5.779	-12.8	-28.2	25	15.0																			
450	31	6.559	-19.5	-32.4	2.9	10.5	31	6.635	-15.7	-31.0	28	8.5	31	6.666	-13.4	-27.4	27	6.6	31	6.406	-23.8	-37.4	27	18.7	31	6.577	-17.4	-32.3	25	18.2																			
400	31	7.223	-26.1	-37.1	2.9	12.1	31	7.511	-21.8	-36.9	27	11.8	31	7.552	-19.6	-31.5	27	10.2	31	7.256	-30.4	-40.7	27	19.9	31	7.449	-23.7	-36.6	25	20.8																			
350	31	8.378	-32.3	-43.9	3.0	12.6	31	8.485	-28.8	-40.9	27	15.6	31	8.533	-26.6	-39.2	27	14.5	31	8.195	-37.1	-43.7	27	22.6	31	8.414	-30.3	-43.2	25	23.9																			
300	30	9.445	-41.6	-49.6	3.1	13.6	31	9.567	-37.2	-48.3	27	18.5	31	9.626	-35.0	-46.5	27	18.0	31	9.241	-44.5		27	23.3	31	9.490	-38.4	-49.6	25	26.2																			
250	30	10.536	-49.0	-60.3	3.1	14.5	31	10.802	-46.3		27	23.6	30	10.868	-43.9		27	21.7	31	10.443	-51.0		27	24.3	31	10.719	-46.7		25	28.1																			
200	30	12.105	-60.8	-72.5	3.1	15.5	31	12.407	-57.5		28	24.3	30	12.473	-55.1		27	24.3	31	12.025	-55.5		27	25.9	31	12.297	-50.7		25	31.2																			
175	2	12.947	-60.8			31	15.2	31	13.095	-60.7	28	24.2	30	13.165	-61.3		27	24.2	30	12.727	-55.8		27	22.0	31	13.008	-59.3		25	31.2																			
150	2	13.909	-61.2			30	15.3	31	14.045	-60.7	28	21.6	30	14.107	-61.7		27	20.4	30	13.706	-57.3		27	20.3	31	13.967	-61.7		26	26.7																			
125	2	15.636	-62.3			30	13.5	31	15.142	-60.6	27	16.2	29	15.185	-73.7		27	14.3	29	14.857	-58.9		27	18.7	31	15.088	-65.4		24	23.5																			
100	2	16.602	-64.7			30	11.9	30	16.463	-71.9	28	10.9	8	16.481	-74.9		27	6.7	29	16.256	-59.0		27	16.0	31	16.447	-65.9		26	16.1																			
75	2	17.766	-67.1			30	8.9	30	17.782	-69.4	28	5.8	5	17.782	-72.1		30	2.5	29	17.658	-58.1		27	12.9	30	17.804	-64.6		26	9.8																			
70	2	18.588	-62.8			31	7.9	30	18.588	-67.9	28	6.2	1	18.577	-68.5		28	18.501	29	18.501	-57.7		26	11.1	30	18.625	-62.9		24	6.8																			
60	28	19.240	-61.9			32	5.7	30	19.528	-63.0	12	-8	7	19.508	-62.5		09	2.9	28	19.474	-57.4		26	9.1	30	19.579	-61.0		25	4.6																			
50	28	20.673	-60.5			33	5.4	30	20.658	-60.1	14	-5	6	20.624	-62.3		10	4.5	27	20.629	-56.4		26	7.0	30	20.720	-58.0		28	2.6																			
40	28	22.068	-69.6			34	4.6	29	22.061	-57.1	07	2.5	26	22.017	-58.4		09	6.6	26	22.053	-55.1		26	6.7	29	22.132	-56.0		29	8.4																			
30	28	23.876	-71.5			34	4.2	7	23.900	-53.1	08	4	23	23.844	-54.0		08	8.7	26	23.899	-53.3		26	6.4	29	23.974	-53.3		03	0.9																			
20	28	25.346	-74.5			34	3.8	28	25.327	-51.2	08	1.9	28	25.023	-51.2		08	0.2	26	25.084	-48.4		26	5.4	28	25.157	-52.7		02	1.5																			
20	28	26.457	-65.6			36	4.1	29	26.540	-48.5	08	1.9	22	26.485	-48.4		09	5.0	23	26.521	-50.7		25	4.5	26	26.609	-61.6		22	2.7																			
15	28	28.307	-82.6			28	7.3	27	28.437	-46.5	30	2.2	17	28.333	-45.3		04	1.6	20	28.416	-48.6		26	7.5	26	28.502	-47.5		36	2.0																			
10	30	30.940	-69.3			20	31.160	-47.6	31	2.8	6	31	31.080	-43.6						31	31.090	-46.0		26	11.7	19	31.190	-43.9		27	4.7																		



## Average monthly values

# RAWINSONDE DATA

Average monthly values

OCTOBER 1978

FLYING, MI 985 MB										FLYING, MI 855 MB										FLYING, MI 851 MB										FLYING, MI 991 MB												
Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb												
No. of observations										No. of observations										No. of observations										No. of observations												
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters												
Temperature °C										Temperature °C										Temperature °C										Temperature °C												
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C												
Resultant Wind Direction tens of deg.										Resultant Wind Direction tens of deg.										Resultant Wind Direction tens of deg.										Resultant Wind Direction tens of deg.												
Speed m.p.s.										Speed m.p.s.										Speed m.p.s.										Speed m.p.s.												
No. of observations										No. of observations										No. of observations										No. of observations												
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters												
Temperature °C										Temperature °C										Temperature °C										Temperature °C												
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C												
Resultant Wind Direction tens of deg.										Resultant Wind Direction tens of deg.										Resultant Wind Direction tens of deg.										Resultant Wind Direction tens of deg.												
Speed m.p.s.										Speed m.p.s.										Speed m.p.s.										Speed m.p.s.												
1000	31	236	7.1	3.2	20	1.6	31	696	1.1	-5	32	1.0	31	1.472	8.0	-4.6	11	2.0	31	1.118	5.5	-3.0	22	4.3	31	210	5.4	2.6	26	1.6	31	553	6.4	4.5	27	3.9	31	995	4.7	-2.2	26	5.3
950	31	58	7.6	1.7	2	5.0	31	1.013	7.7	-1.9	29	5.6	31	1.530	11.1	-5.0	12	2.4	31	1.504	8.8	-5.8	25	7.2	31	593	6.4	4.5	27	3.9	31	995	4.7	-2.2	26	5.3	31	995	4.7	-2.2	26	5.3
900	31	1.013	7.7	-1.9	27	7.0	31	1.485	6.0	-5.1	29	8.4	31	1.530	11.1	-5.0	12	2.4	31	1.504	8.8	-5.8	25	7.2	31	593	6.4	4.5	27	3.9	31	995	4.7	-2.2	26	5.3	31	995	4.7	-2.2	26	5.3
850	31	1.968	3.1	-4.9	27	10.7	31	1.979	3.1	-8.0	30	10.9	31	2.032	11.4	-4.9	13	2.5	31	2.003	5.5	-1.1	27	6.9	31	1.947	-0.2	-10.3	28	7.6	31	1.947	-0.2	-10.3	28	7.6	31	1.947	-0.2	-10.3	28	7.6
800	31	2.465	-1.0	-13.6	27	8.0	31	2.500	-7	-11.0	30	12.0	31	2.531	8.6	-7.1	13	2.6	31	2.528	8.6	-7.1	13	2.6	31	2.465	-1.0	-13.6	27	8.0	31	2.465	-1.0	-13.6	27	8.0	31	2.465	-1.0	-13.6	27	8.0
750	31	3.051	-3.6	-15.9	27	17.1	31	3.051	-2.3	-13.3	30	12.0	31	3.135	-4.8	-9.0	28	3.5	31	3.082	-1.0	-13.3	28	10.1	31	3.008	-4.8	-17.3	28	7.6	31	3.008	-4.8	-17.3	28	7.6	31	3.008	-4.8	-17.3	28	7.6
700	31	3.636	-6.2	-19.4	27	14.1	31	3.636	-5.7	-16.9	30	13.2	31	3.735	-9	-12.5	28	5.4	31	3.670	-4.3	-16.7	29	10.8	31	3.588	-7.9	-21.2	28	12.3	31	3.588	-7.9	-21.2	28	12.3	31	3.588	-7.9	-21.2	28	12.3
650	31	4.239	-9.6	-25.5	27	15.9	31	4.259	-9.1	-22.4	30	14.4	31	4.373	-3.4	-16.6	28	6.9	31	4.297	-8.0	-20.2	29	12.6	31	4.206	-11.4	-25.0	28	13.9	31	4.206	-11.4	-25.0	28	13.9	31	4.206	-11.4	-25.0	28	13.9
600	31	4.906	-13.7	-34.6	27	17.5	31	4.927	-13.5	-27.2	30	15.6	31	5.055	-7.9	-20.8	29	8.1	31	4.967	-12.2	-24.0	29	15.1	31	4.868	-15.5	-28.4	28	14.9	31	4.868	-15.5	-28.4	28	14.9	31	4.868	-15.5	-28.4	28	14.9
550	31	5.626	-18.4	-38.4	27	19.4	31	5.646	-18.4	-29.6	30	17.2	31	5.789	-12.5	-27.2	29	9.5	31	5.690	-16.7	-29.3	30	16.8	31	5.581	-20.1	-32.0	28	16.1	31	5.581	-20.1	-32.0	28	16.1	31	5.581	-20.1	-32.0	28	16.1
500	31	6.402	-23.9	-43.0	27	21.2	31	6.424	-23.7	-35.0	30	18.7	31	6.585	-18.2	-32.4	29	10.5	31	6.476	-21.8	-34.0	30	18.3	31	6.353	-25.5	-46.1	28	18.7	31	6.353	-25.5	-46.1	28	18.7	31	6.353	-25.5	-46.1	28	18.7
450	31	7.251	-30.2	-50.2	27	23.5	31	7.274	-29.8	-39.3	30	21.4	31	7.453	-24.9	-38.0	29	11.5	30	7.328	-28.2	-38.9	30	20.4	31	7.197	-31.9	-40.7	27	20.0	31	7.197	-31.9	-40.7	27	20.0	31	7.197	-31.9	-40.7	27	20.0
400	31	8.135	-37.2	-63.0	27	24.9	31	8.215	-36.5	-43.7	31	23.4	30	8.414	-32.5	-43.5	29	11.7	29	8.278	-35.2	-43.9	30	20.4	31	8.131	-38.2	-45.3	27	21.4	31	8.131	-38.2	-45.3	27	21.4	31	8.131	-38.2	-45.3	27	21.4
350	31	9.089	-44.4	-70.0	27	26.3	31	9.264	-43.2	-50.3	31	24.1	29	9.476	-41.1	-50.3	29	11.4	29	9.331	-43.2	-50.3	30	21.6	31	9.173	-45.0	-52.1	27	22.8	31	9.173	-45.0	-52.1	27	22.8	31	9.173	-45.0	-52.1	27	22.8
300	31	10.038	-51.0	-76.6	27	28.5	31	10.204	-51.2	-57.1	31	24.5	29	10.691	-49.7	-57.1	28	13.2	29	10.537	-51.2	-57.1	30	20.1	30	10.372	-50.7	-57.8	27	25.3	31	10.372	-50.7	-57.8	27	25.3	31	10.372	-50.7	-57.8	27	25.3
250	31	11.045	-58.6	-83.2	27	30.7	31	11.200	-58.8	-64.9	31	25.0	29	12.128	-56.5	-64.9	28	15.6	29	11.968	-56.6	-64.9	30	21.2	30	11.810	-56.8	-64.9	27	28.1	31	11.810	-56.8	-64.9	27	28.1	31	11.810	-56.8	-64.9	27	28.1
200	31	12.124	-65.7	-88.7	27	32.5	31	12.279	-65.2	-72.3	31	23.6	29	12.971	-59.8	-72.3	28	15.4	29	12.811	-58.1	-72.3	30	20.9	30	12.664	-55.3	-72.3	27	29.0	31	12.664	-55.3	-72.3	27	29.0	31	12.664	-55.3	-72.3	27	29.0
150	31	13.302	-73.4	-95.7	27	34.2	31	13.457	-72.9	-79.0	31	21.9	29	13.933	-61.4	-79.0	28	14.7	29	13.781	-58.8	-79.0	30	20.5	30	13.664	-56.3	-79.0	27	31.9	31	13.664	-56.3	-79.0	27	31.9	31	13.664	-56.3	-79.0	27	31.9
100	31	14.581	-81.0	-103.7	27	36.3	31	14.736	-80.5	-86.6	31	19.0	28	15.055	-64.6	-86.6	27	13.7	29	14.921	-60.4	-86.6	30	17.7	30	14.798	-58.4	-86.6	27	34.0	31	14.798	-58.4	-86.6	27	34.0	31	14.798	-58.4	-86.6	27	34.0
50	31	16.447	-88.9	-120.0	27	38.5	31	16.602	-88.4	-94.5	31	17.2	28	16.510	-66.7	-94.5	27	11.1	28	16.305	-61.3	-94.5	30	14.5	30	16.199	-59.5	-86.6	27	35.5	31	16.199	-59.5	-86.6	27	35.5	31	16.199	-59.5	-86.6	27	35.5
0	31	17.647	-93.9	-127.0	27	40.7	31	17.802	-93.7	-99.8	31	12.6	28	17.763	-65.6	-99.8	30	7.8	28	17.651	-60.6	-99.8	30	12.1	30	17.559	-59.5	-86.6	27	36.0	31	17.559	-59.5	-86.6	27	36.0	31	17.559	-59.5	-86.6	27	36.0
0	31	18.483	-98.9	-132.0	27	42.9	31	18.638	-98.7	-104.8	31	10.9	26	18.594	-64.1	-104.8	30	6.8	26	18.482	-60.4	-104.8	30	10.2	30	18.380	-58.4	-86.6	27	37.0	31	18.380	-58.4	-86.6	27	37.0	31	18.380	-58.4	-86.6	27	37.0
0	31	19.455	-105.5	-137.0	27	45.1	31	19.610	-105.3	-111.4	31	9.6	26	19.529	-62.7	-111.4	30	6.1	26	19.480	-60.6	-111.4	30	7.6	28	19.398	-58.2	-86.6	27	38.0	31	19.398	-58.2	-86.6	27	38.0	31	19.398	-58.2	-86.6	27	38.0
0	31	20.606	-110.7	-142.0	27	47.3	31	20.761	-110.5	-116.6	31	8.1	25	20.659	-60.6	-116.6	30	5.2	25	20.622	-58.9	-116.6	30	6.1	28	20.548	-57.7	-86.6	27	39.0	31	20.548	-57.7	-86.6	27	39.0	31	20.548	-57.7	-86.6	27	39.0
0	31	22.021	-115.7	-147.0	27	49.5	31	22.176	-115.5	-121.6	31	6.1	23	22.049	-58.9	-121.6	30	3.8	23	22.024	-58.5	-121.6	30	5.1	28	21.961	-56.3	-86.6	27	40.0	31	21.961	-56.3	-86.6	27	40.0	31	21.961	-56.3	-86.6	27	40.0
0	31	23.883	-123.5	-155.0	27	51.7	31	24.038	-123.3	-129.4	31	5.4	20	23.870	-55.2	-129.4	29	3.3	20	23.837	-57.2	-129.4	29	4.3	28	23.790	-54.2	-86.6	27	41.0	31	23.790	-54.2	-86.6	27	41.0	31	23.790	-54.2	-86.6	27	41.0
0	31	25.037	-128.2	-160.0	27	53.9	31	25.192	-128.0	-134.1	31	5.0	19	25.040	-54.2	-134.1	27	3.3	19	25.007	-56.2	-134.1	27	5.3	28	24.970	-52.5	-86.6	27	42.0	31	24.970	-52.5	-86.6	27	42.0	31	24.970	-52.5	-86.6	27	42.0
0	31	26.278	-133.2	-165.0	27	56.1	31	26.433	-133.0	-139.1	31	4.6	18	26.276	-52.7	-139.1	26	2.6	18	26.245	-52.7	-139.1	26	6.1	28	26.175	-50.7	-86.6	27	43.0	31	26.175	-50.7	-86.6	27	43.0	31	26.175	-50.7	-86.6	27	43.0
0	31	28.382	-141.9	-173.0	27	58.3	31	28.537	-141.7	-147.8	31	4.0	19	28.385	-50.6	-147.8	27	10.7	15	28.251	-53.8	-147.8	30	5.9	26	28.282	-50.1	-86.6	27	44.0	31	28.282	-50.1	-86.6	27	44.0	31	28.282	-50.1	-86.6	27	44.0
0	31	31.073	-147.0	-179.0	27	60.5	31	31.228	-146.8	-152.9	31	3.6	19	31.071	-48.6	-152.9	27	10.7	15	30.864	-51.9	-152.9	30	5.9	26	30.864	-48.1	-86.6	27	45.0	31	30.864	-48.1	-86.6	27	45.0	31	30.864	-48.1	-86.6	27	45.0



## Average monthly values

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# RAWINSONDE DATA

Average monthly values

OCTOBER 1978

MUNNETT, NE 968 MB												LAWVILLE, TN 1300 MB												NOME, AK 1003 MB												NORTH PLATTE, NE 921 MB												OAKLAND, CA 1015 MB											
Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb											
No. of observations												No. of observations												No. of observations												No. of observations												No. of observations											
Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters											
Temperature °C												Temperature °C												Temperature °C												Temperature °C												Temperature °C											
Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C											
Direction tens of deg												Direction tens of deg												Direction tens of deg												Direction tens of deg												Direction tens of deg											
Speed m/s												Speed m/s												Speed m/s												Speed m/s												Speed m/s											
500	31	436	8.7	6.0	16	1.1	1.1	18	2.0	7.6	15	39	5	-3.8	-8.3	04	3.7	31	847	2.7	-2.1	35	1.3	30	8	13.0	10.5	28	7	7	7	7	30	8	13.0	10.5	28	7	7	7	30	8	13.0	10.5	28	7	7	7											
1000	31	598	12.9	5.5	22	1.1	1.1	210	7.4	3.1	10	1.0	1.0	96	-3.3	-10.9	03	3.7							30	131	14.6	9.0	28	7	7	7	7	30	131	14.6	9.0	28	7	7	7	30	131	14.6	9.0	28	7	7	7										
500	31	1,530	12.3	4.6	26	5.6	5.6	1,055	9.9	2.26	3.7	30	4.1	-2.2	-9.5	06	6.7	31	1,032	8.1	-2.3	33	2.8	30	566	17.1	2.5	34	1.6	7	7	7	7	30	566	17.1	2.5	34	1.6	7	7	7	30	566	17.1	2.5	34	1.6	7	7	7								
850	31	1,530	12.3	4.6	26	5.6	5.6	1,055	9.9	2.26	3.7	30	4.1	-2.2	-9.5	06	6.7	31	1,032	8.1	-2.3	33	2.8	30	566	17.1	2.5	34	1.6	7	7	7	7	30	566	17.1	2.5	34	1.6	7	7	7	30	566	17.1	2.5	34	1.6	7	7	7								
800	31	2,333	7.9	-6.0	30	4.1	4.1	2,026	5.7	-8.4	28	6.7	1,303	-7.3	-13.1	06	6.7	31	1,506	9.5	-2.4	32	4.8	30	1,516	16.4	-2.9	31	1.6	7	7	7	7	30	1,516	16.4	-2.9	31	1.6	7	7	7	30	1,516	16.4	-2.9	31	1.6	7	7	7								
750	31	2,563	5.2	-8.8	30	8.9	8.9	2,552	4.0	-13.7	28	6.7	2,271	-10.7	-18.5	04	6.4	31	2,537	4.9	-7.4	30	8.5	30	2,569	10.2	-10.8	24	7	7	7	7	30	2,569	10.2	-10.8	24	7	7	7	30	2,569	10.2	-10.8	24	7	7	7											
700	31	3,123	2.3	-11.5	30	9.4	9.4	3,111	1.6	-14.9	28	6.5	2,871	-13.4	-22.0	04	6.4	31	3,097	1.6	-10.8	30	10.3	30	3,138	6.5	-14.2	26	3	7	7	7	30	3,138	6.5	-14.2	26	3	7	7	30	3,138	6.5	-14.2	26	3	7	7											
650	31	3,719	-0.7	-14.6	29	9.9	9.9	3,705	-1.4	-18.2	28	6.8	3,362	-16.6	-25.4	04	5.7	31	3,690	-1.9	-14.7	30	11.5	30	3,742	3.0	-17.4	31	7	7	7	7	30	3,742	3.0	-17.4	31	7	7	7	30	3,742	3.0	-17.4	31	7	7	7											
600	31	4,354	-4.4	-17.9	29	10.7	10.7	4,338	-5.2	-20.7	28	10.1	3,954	-20.6	-29.3	03	5.5	31	4,322	-5.7	-18.8	30	12.2	30	4,385	-1.3	-20.7	31	1.9	7	7	7	7	30	4,385	-1.3	-20.7	31	1.9	7	7	7	30	4,385	-1.3	-20.7	31	1.9	7	7	7								
550	31	5,034	-8.7	-23.4	29	12.1	12.1	5,016	-9.2	-24.4	28	12.0	4,598	-24.5	-33.0	03	5.5	31	4,999	-10.0	-22.6	30	13.9	30	5,072	-6.1	-24.6	32	2.7	7	7	7	7	30	5,072	-6.1	-24.6	32	2.7	7	7	7	30	5,072	-6.1	-24.6	32	2.7	7	7	7								
500	31	5,768	-12.9	-27.9	29	13.9	13.9	5,746	-14.1	-28.6	28	13.7	5,286	-29.1	-38.1	02	5.4	31	5,727	-14.8	-26.5	30	15.2	30	5,810	-11.8	-29.2	32	2.9	7	7	7	7	30	5,810	-11.8	-29.2	32	2.9	7	7	7	30	5,810	-11.8	-29.2	32	2.9	7	7	7								
450	31	6,562	-18.8	-34.8	28	15.7	15.7	6,538	-19.7	-34.0	28	14.9	6,030	-34.5	-43.3	02	5.4	31	6,517	-20.5	-31.3	29	16.4	30	6,607	-17.8	-33.6	30	3.7	7	7	7	7	30	6,607	-17.8	-33.6	30	3.7	7	7	7	30	6,607	-17.8	-33.6	30	3.7	7	7	7								
400	31	7,429	-25.2	-40.0	28	16.4	16.4	7,401	-26.0	-39.4	28	17.2	6,884	-40.6	-46.7	02	4.9	31	7,377	-26.9	-37.6	29	17.8	30	7,476	-24.8	-38.9	29	3.7	7	7	7	7	30	7,476	-24.8	-38.9	29	3.7	7	7	7	30	7,476	-24.8	-38.9	29	3.7	7	7	7								
350	31	8,387	-32.5	-46.5	28	17.4	17.4	8,357	-33.1	-46.2	28	18.9	7,742	-47.4	-54.6	01	4.2	31	8,329	-32.4	-43.7	30	18.2	30	8,436	-32.1	-45.1	31	4.1	7	7	7	7	30	8,436	-32.1	-45.1	31	4.1	7	7	7	30	8,436	-32.1	-45.1	31	4.1	7	7	7								
300	31	9,452	-40.7	-51.5	28	19.6	19.6	9,419	-41.4	-50.1	28	20.6	8,750	-53.8	-61.3	32	3.3	31	9,386	-42.3	-48.8	30	19.7	30	9,503	-40.3	-51.6	31	4.8	7	7	7	7	30	9,503	-40.3	-51.6	31	4.8	7	7	7	30	9,503	-40.3	-51.6	31	4.8	7	7	7								
250	31	10,671	-48.9	-57.7	28	21.9	21.9	10,635	-49.5	-57.2	28	23.8	9,913	-55.4	-63.9	32	3.1	31	10,596	-50.7	-57.2	30	20.8	30	10,724	-48.7	-57.7	33	6.4	7	7	7	7	30	10,724	-48.7	-57.7	33	6.4	7	7	7	30	10,724	-48.7	-57.7	33	6.4	7	7	7								
200	31	12,111	-55.7	-64.8	28	24.0	24.0	12,073	-56.3	-64.7	28	26.4	11,340	-61.6	-70.1	28	25.9	31	12,030	-56.3	-63.3	29	22.8	30	12,166	-56.4	-64.8	31	6.4	7	7	7	7	30	12,166	-56.4	-64.8	31	6.4	7	7	7	30	12,166	-56.4	-64.8	31	6.4	7	7	7								
175	31	12,956	-64.8	-74.8	28	24.6	24.6	12,911	-65.4	-74.3	28	25.9	12,216	-71.2	-79.7	25	4.6	31	12,875	-57.9	-64.8	29	22.4	30	13,009	-58.3	-66.3	30	7.7	7	7	7	7	30	13,009	-58.3	-66.3	30	7.7	7	7	7	30	13,009	-58.3	-66.3	30	7.7	7	7	7								
150	31	13,916	-61.6	-81.6	28	26.9	26.9	13,873	-62.1	-81.5	28	27.8	13,218	-68.1	-76.6	25	5.9	31	13,841	-61.6	-81.6	29	24.6	30	14,070	-63.1	-71.6	30	7.3	7	7	7	7	30	14,070	-63.1	-71.6	30	7.3	7	7	7	30	14,070	-63.1	-71.6	30	7.3	7	7	7								
100	31	16,392	-65.8	-89.8	29	33.8	33.8	16,355	-66.3	-89.3	28	35.5	15,583	-73.3	-81.8	25	8.1	31	16,340	-64.0	-81.6	29	33.2	30	16,455	-66.2	-81.6	30	5.8	7	7	7	7	30	16,455	-66.2	-81.6	30	5.8	7	7	7	30	16,455	-66.2	-81.6	30	5.8	7	7	7								
80	31	17,752	-65.8	-90.8	29	35.0	35.0	17,715	-66.2	-90.2	27	36.2	17,259	-72.1	-80.6	25	9.6	31	17,708	-63.3	-80.8	29	34.6	30	17,850	-66.3	-81.6	30	5.9	7	7	7	7	30	17,850	-66.3	-81.6	30	5.9	7	7	7	30	17,850	-66.3	-81.6	30	5.9	7	7	7								
70	31	18,576	-62.8	-87.8	28	34.0	34.0	18,535	-62.7	-87.7	28	35.7	18,162	-69.9	-78.4	25	10.2	30	18,530	-61.9	-79.4	29	34.0	30	18,617	-64.9	-80.9	30	3.1	7	7	7	7	30	18,617	-64.9	-80.9	30	3.1	7	7	7	30	18,617	-64.9	-80.9	30	3.1	7	7	7								
50	31	19,535	-59.8	-84.8	27	32.0	32.0	19,490	-60.3	-84.3	27	33.9	19,142	-67.3	-75.8	25	11.4	31	19,481	-59.8	-77.3	29	32.8	30	19,600	-61.9	-77.9	30	3.2	7	7	7	7	30	19,600	-61.9	-77.9	30	3.2	7	7	7	30	19,600	-61.9	-77.9	30	3.2	7	7	7								
50	31	20,667	-68.8	-93.8	27	4.5	4.5	20,630	-58.7	-93.2	26	4.4	20,322	-59.3	-67.8	23	13.0	30	20,622	-59.9	-67.4	29	30.5	30	21,209	-68.8	-93.8	30	3.1	7	7	7	7	30	21,209	-68.8	-93.8	30	3.1	7	7	7	30	21,209	-68.8	-93.8	30	3.1	7	7	7								
40	31	22,075	-56.0	-80.0	26	4.3	4.3	22,040	-55.4	-80.4	26	4.9	21,752	-54.7	-63.2	26	14.1	27	22,024	-58.4	-66.4	28	3.9	28	22,073	-59.4	-80.4	30	2.7	7	7	7	7	30	22,073	-59.4	-80.4	30	2.7	7	7	7	30	22,073	-59.4	-80.4	30	2.7	7	7	7								
30	31	23,917	-63.0	-87.0	26	4.8	4.8	23,871	-53.7	-83.7	30	2.7	23,630	-54.6	-63.6	26	15.6	27	23,847	-55.4	-63.4	28	6.0	27	23,887	-56.3	-80.3	30	3.1	7	7	7	7	30	23,887	-56.3	-80.3	30	3.1	7	7	7	30	23,887	-56.3	-80.3	30	3.1	7	7	7								
25	31	25,054	-61.3	-84.3	27	4.4	4.4	25,054	-52.3	-82.3	28	2.0	24,749	-54.7	-63.7	27	17.1	26	25,019	-53.8	-61.8	26	7.0	25	25,050	-55.1	-80.1	30	2.9	7	7	7	7	30	25,050	-55.1	-80.1	30	2.9	7	7	7	30	25,050	-55.1	-80.1	30	2.9	7	7	7								
20	31	26,565	-61.7	-84.7	27	5.2	5.2	26,490	-50.2	-80.2	29	1.9	26,183	-50.2	-60.2	24	18.5	26	26,460	-51.9	-59.9	25	8.1	25	26,540	-52.9	-79.9	30	2.9	7	7	7	7	30	26,540	-52.9	-79.9	30	2.9	7	7	7	30	26,540	-52.9	-79.9	30	2.9	7	7	7								
15	31	28,043	-60.5	-83.5	28	7.6	7.6	28,381	-58.6	-86.6	28	10.8	27,816	-53.7	-61.7	26	24.5	26	28,039	-53.8	-61.8	26	11.9	25	2																																		

## Average monthly values

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## Average monthly values

OCTOBER 1978

YAKUTAT, AK						YAP, CAROLINE IS.																	
1004 MR						1006 MB																	
SFC	30	12	6.0	5.8	11	2.7	91	14	24.0	24.7	25	.7											
1000	18	103	6.4	4.1	12	2.9	91	71	27.1	24.3	25	.9											
950	30	467	4.5	3.3	16	5.3	91	525	23.8	22.0	25	1.8											
900	30	906		1.7	7	18	6.6	99	21.2	18.7	25	2.2											
850	30	1,364	-1.2	-2.3	19	7.8	91	1,493	18.5	15.5	26	1.8											
800	30	1,846	-4.0	-6.1	19	6.9	91	2,012	16.1	12.5	25	.7											
750	30	2,353	-7.0	-10.5	20	8.2	91	2,560	13.3	9.4	21	.7											
700	30	2,888	-10.5	-15.9	21	9.3	91	3,130	10.3	4.7	20	1.0											
650	30	3,454	-14.1	-20.1	21	9.7	91	3,754	7.1	2.2	19	1.1											
600	30	4,058	-18.0	-24.8	21	11.1	91	4,408	3.2	-1.4	18	.9											
550	30	4,703	-22.2	-30.8	22	12.7	91	5,110	.7	-5.2	14	1.0											
500	30	5,397	-27.3	-36.6	22	14.3	91	5,866	-4.9	-10.8	12	1.2											
450	30	6,148	-32.0	-40.8	23	16.5	91	6,689	-9.2	-16.6	10	1.3											
400	30	6,971	-37.7	-42.7	23	19.1	91	7,591	-14.7	-24.0	11	1.7											
350	30	7,883	-43.5		24	20.7	91	8,592	-21.5	-30.3	09	3.0											
300	30	8,903	-49.3	-39.7	24	22.0	91	9,708	-29.6	-39.5	07	4.1											
250	30	10,088	-52.9		24	21.2	91	10,980	-40.3	-68.8	07	5.4											
200	30	11,528	-52.3		25	19.3	91	12,460	-53.2		08	6.8											
175	30	12,392	-52.3		25	18.7	91	13,307	-60.3		08	8.7											
150	30	13,389	-52.6		25	18.7	91	14,249	-68.3		07	10.6											
125	30	14,565	-53.1		25	17.1	91	15,324	-75.8		07	11.3											
100	30	16,002	-53.9		25	15.5	91	16,592	-81.3		08	13.8											
80	28	17,440	-53.9		24	14.6	91	17,462	-75.5		09	8.2											
70	28	18,298	-53.8		26	14.3	91	18,645	-70.9		08	5.8											
60	28	19,286	-54.9		26	14.0	91	19,567	-67.0		09	2.7											
50	28	20,451	-55.1		26	12.8	30	20,678	-63.0		08	1.2											
40	28	21,872	-56.1		27	13.6	29	22,057	-60.2		08	3.6											
30	25	23,696	-55.7		27	14.7	29	23,871	-55.6		09	10.2											
25	25	24,495	-56.5		28	14.1	29	25,082	-52.5		09	14.6											
20	22	26,279	-55.6		28	15.3	26	26,492	-49.5		09	19.7											
15	15	28,121	-54.9		29	15.0	23	28,395	-44.9		09	28.7											
10	5	30,717	-52.6				15	31,140	-39.2		09	33.1											





# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA -- METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum  $\geq 1.1^{\circ}\text{C}$ , or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

$^{\circ}\text{F.} = \frac{9}{5} \times ^{\circ}\text{C} + 32$

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

Ø Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

@ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

# No Storm Data Report received for this State.

<# Report Incomplete.

+ Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than  $-40^{\circ}\text{C}$ . Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than  $6^{\circ}$  above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

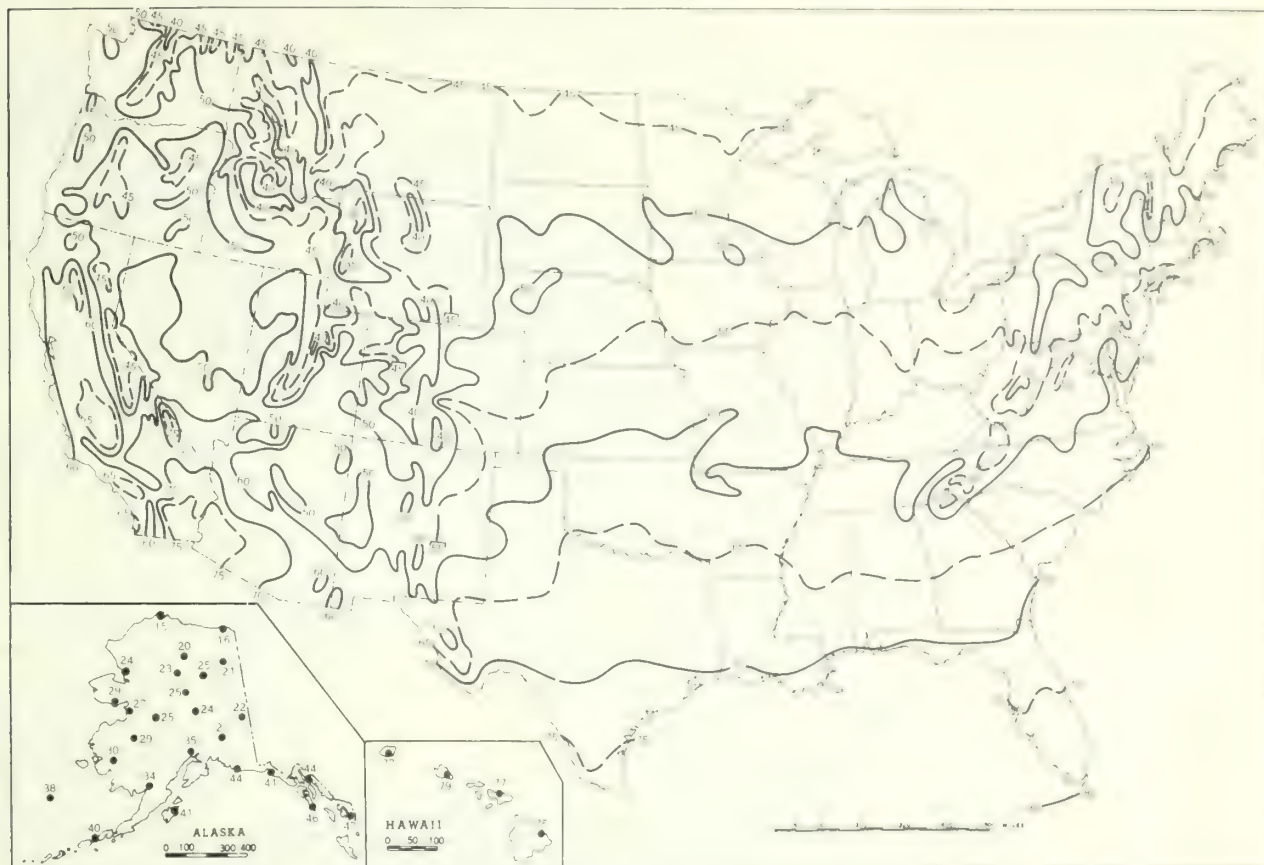
**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

.)	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeterminable
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Sand
BN	Blowing Sand	GF	Ground Fog	K	Smoke	S	Slight Haze-indeterminable
D	Dust	H	Haze	KI	Intense Smoke		
LI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		

**NET RADIATION:** The measurement is made with a "SIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), October.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), October 1978

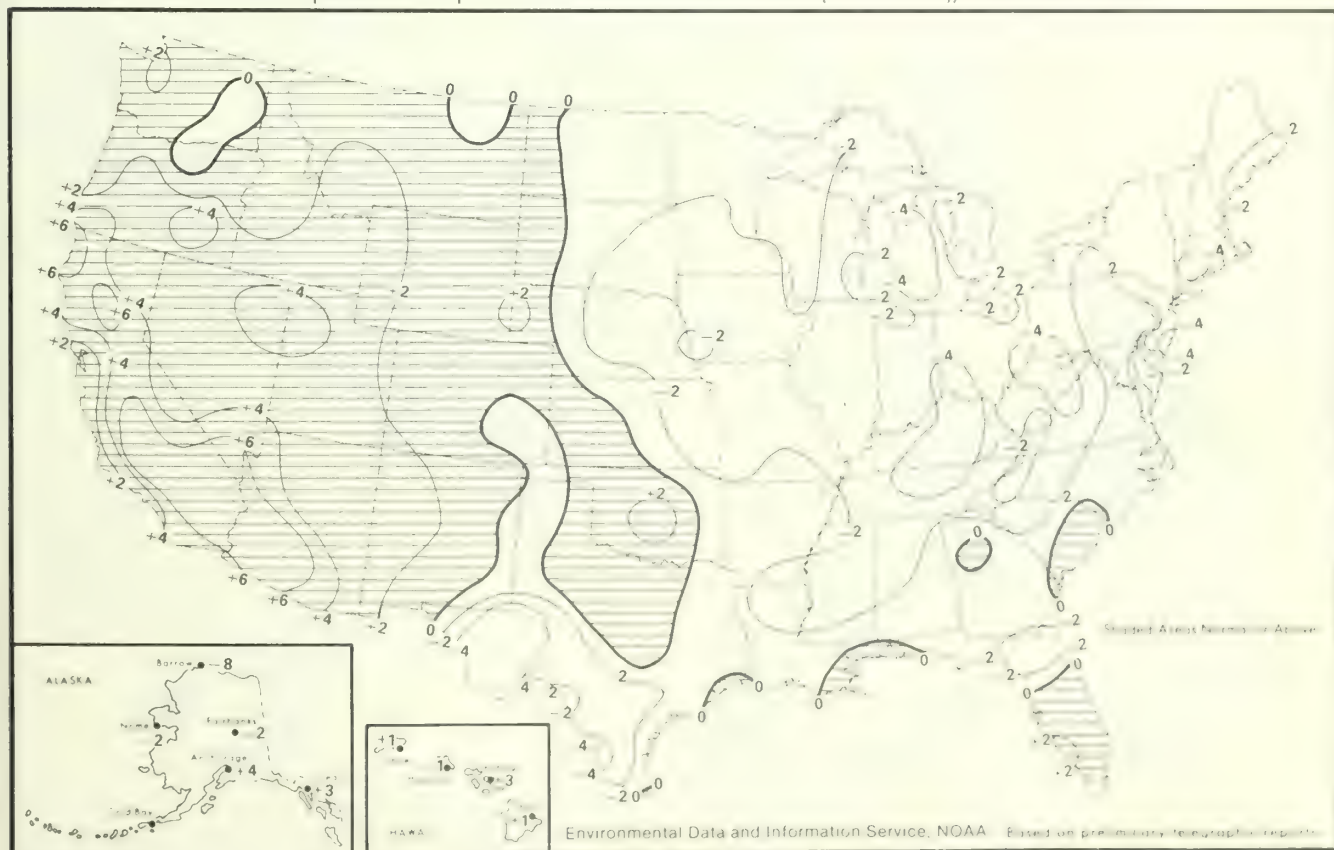
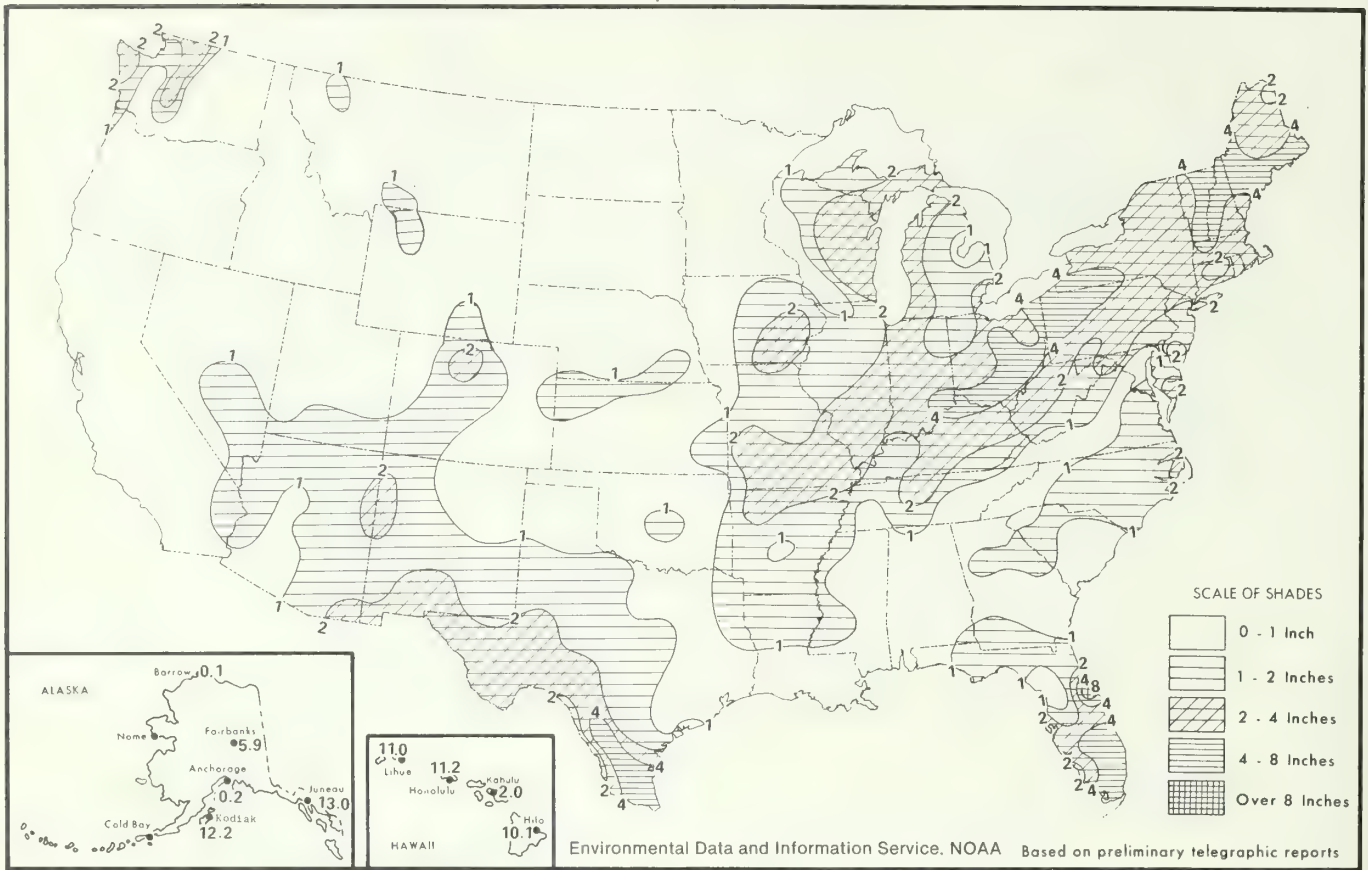




Chart II. A. Total Precipitation (Inches), October 1978

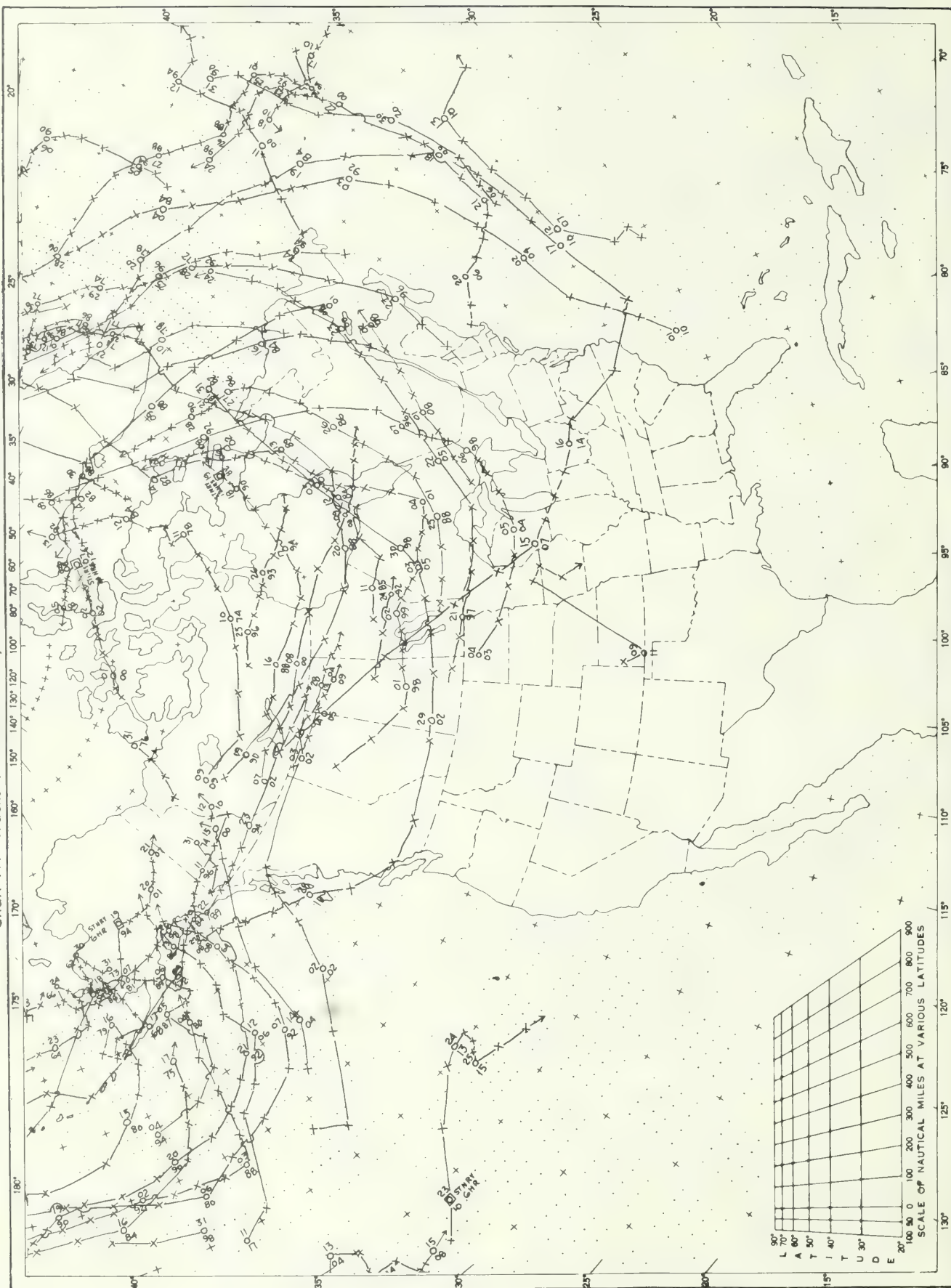


B. Percentage of Normal Precipitation, October 1978





Chart IV. Tracks of Centers of Cyclones at Sea Level, October 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track











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NOVEMBER 1978

VOLUME 29

NUMBER 11

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



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TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
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*Charles B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# MONTHLY SUMMARY SOLAR RADIATION DATA

The National Climatic Center has published the January 1977 issue of Monthly Summary Solar Radiation Data. This Department of Energy sponsored publication contains edited hourly totals, daily totals, and monthly means of total hemispheric (global) solar radiation on a horizontal surface for the new 38-station NOAA Solar Radiation Network. Data are shown in kilojoules per square meter for each hour Local Standard Time. The January 1977 issue contains measurements from 23 stations. Subsequent issues will include additional stations as they become operational. Monthly issues will be published as rapidly as possible in order to make up the backlog.

The subscription price is \$8.40 per year domestic, \$19.70 per year foreign, single copy price \$0.70 domestic, \$1.64 foreign. There is a minimum charge of \$2.00 for each order of shelf-stocked issues. Address requests to: Director, National Climatic Center, Federal Building, Asheville, NC 28801, or telephone (704) 258-2850, Ext. 683 (FTS 672-0683).

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

NOVEMBER 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Rain during November eased the dry spell along the eastern slopes of the Appalachians from Virginia southward and brought a respite to the drought in the Southeast. The severe drought in Oklahoma and Arkansas ended as well because more than twice the normal rain fell in those areas. Totals of 5 to 7 inches generally fell over the driest areas. Above-normal precipitation soaked a wide area from Arizona, New Mexico, and Texas northeastward to the western Lakes area. Heavy snow accumulated over the northern Rockies. The snow line extended southward in the Plains through Nebraska. Temperatures were colder than normal in the Pacific Northwest, the Plateau, most of California, and the Great Plains from Nebraska northward. Temperatures in parts of Montana and Wyoming averaged 11° colder than normal. The East and South enjoyed warmer than normal weather.

November began with very dry areas along the east slopes of the Appalachians from Virginia southward through the Southeast and in eastern Oklahoma and western Arkansas. The first five days of the month brought no precipitation to these areas but parts of New Mexico and southwestern Texas were deluged with 3 to 5 inches of rain. Flooding on the Rio Grande resulted. Most of the Nation averaged warmer than normal during this first week. Averages such as 12° warmer than normal were noted throughout the Mississippi River Valley.

The second week of November saw some precipitation recorded in nearly all of the United States. One exception turned up in the very dry portion of south central and southeastern Georgia. The other very dry areas had small amounts of rain. Heavy snow and strong winds followed by record cold weather moved into Montana and plunged southward to Arizona. The cold outburst brought sub-zero temperatures into Montana and the average for the week in that area dipped 12° colder than normal. The Southwest and

east of the Rockies remained warmer than normal.

During the 13th to the 19th an upper air disturbance in the Southwest kicked off a series of storm systems that brought heavy rain from eastern Texas into Indiana. Totals of 2 to 5 or more inches fell in the very dry portions of eastern Oklahoma and western Arkansas. Elsewhere, rain again dampened the east slopes of the Appalachians, lowering the fire danger there; however southern Georgia and most of Florida had no rain. The cold air enveloped all of the West and only the area east of the Great Plains averaged warmer than normal.

From the 20th to the 26th, another upper air disturbance moved southward along the Pacific Coast and into the Southwest. Rain, some heavy, moved through California into the Southwest. Elsewhere, heavy rain occurred from central Texas along the Gulf Coast to southern Alabama. For the second consecutive week, the area from southern Missouri through the western Ohio Valley accumulated over 2 inches of rain. The southeastern quadrant was again rainless. Warmer air pushed back into the Southwest leaving only the northern half of the States colder than normal, but the below zero readings in Montana averaged 21° below normal.

The last period of the month, through the 30th, brought very welcome relief to the dry areas along the Appalachians and the Southeast. General rains of over an inch covered the Appalachians and more than 2 inches were quickly absorbed in southern Georgia and northern Florida and extended northward to eastern North Carolina. Heavy accumulations of rain were recorded throughout the South, the Mississippi Valley, and the southern Lakes area. The colder than normal air moved eastward into the Plains. Snowcover extended southward in the Plains through Nebraska.

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

NOVEMBER 1978

STATE	Temperature						Precipitation					
	Monthly extremes						Monthly extremes					
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Lowest		
		°F			°F			in.		in.		
Alabama	2 Stations	86	17	2 Stations	-27	14	Mobile WSO AP		Childersburg Water Plant	1.95		
Alaska	3 Stations			2 Stations	-12	16	1 Station	28.39	1 Station	.00		
Arizona	1 Station	98	8	1 Station	16		Crown King	10.20	Yuma WSO AP	.27		
Arkansas	El Dorado FAA AP	88	9	1 Station	21	28	1 Station	14.80		3.57		
California	2 Stations	91	8	2 Stations	-8	12	Mt Wilson 2	10.20	2 Stations	.00		
Colorado	1 Station	80	8	Hermit 7 ESE	-28	28	Wolf Creek Pass 1 E		Longmont 2 FSE	.04		
Connecticut	1 Station	74	7	Wigwam Reservoir	26		Groton	3.74	Falls Village	1.47		
Delaware	2 Stations	74	8	Wilmington Reservoir	27	27	Lewes 1 SW	4.32	Hiddletown 1 WSW	2.33		
Florida	Orlando Ranger Station	92	11	1 Station	-1	1	West Palm Beach WSO AP	8.88	7 Stations	.00		
Georgia	Columville	89	17	2 Stations	27	29		7.21	Folkston 3 SW	.16		
Hawaii	Puukohola Heiau 98.1	90	22	1 Station	28	31	Keanae 346	32.70	Mau Ridge 1035	1.23		
Idaho	2 Stations	87	7	1 Station	-26	15	1 Station	3.1	1 Station	.04		
Illinois	2 Stations	87	7	Stockton 1 N	6	30	Cairo WSO CI	7.76	1 Station	1.38		
Indiana	Mount Vernon	79	6	2 Stations	10	29	Newburgh Lock & Dam	6.13	1 Station	1.79		
Iowa	2 Stations	81	3	2 Stations	-8	28	1 Station	3.13	1 Station	.50		
Kansas	2 Stations	88	8	Brewster	10	31	2 Stations	5.77	Hugoton			
Kentucky	1 Station	80	11	1 Station	22	25	1 Station	8.55	Elkhorn City	2.29		
Louisiana	2 Stations	88	8	2 Stations	28	9	Morgan City	7.42	2 Stations	2.61		
Maine	2 Stations	70	7	2 Stations	-15	28	Batten 4 WSW	3.91	Bangor FAA AP	1.01		
Maryland	2 Stations	77	7	Oakland 1 SE	17	2	Pocomoke City	5.35	Hancock Fruit Lab	2.22		
Massachusetts	1 Station	83	6	Borden Brook Reservoir	5	27	1 Station	4.29	Ware	.1		
Michigan	Kenton U S Forest	80	3	2 Stations	-15	22	1 Station	4.40	Lake City Exp Farm			
Minnesota	3 Stations	79	3	Roseau 1 E	-31	30	Waseca Exp Station	2.95	Alexandria FAA AP	.38		
Mississippi	Wiggins 3 SSE	88	8	3 Stations	25	9	1 Station	7.37	Oklahoma	2.12		
Missouri	2 Stations	87	4	Princeton 6 SW	7	28	Doniphan 4 SE	9.61	1 Station	2.49		
Montana	2 Stations	79	2	1 Station	-35	21	1 Station	4.77	Glen 4 N			
Nebraska	1 Station	83	3	1 Station	-7	28	Falls City	3.03	Nenzel 20 S	.23		
Nevada	Sunrise Manr Las Vegas	83	8	Ely WSO AP	-13	28	Spring Valley State Park	3.04	2 Stations	.03		
New Hampshire	1 Station	72	6	1 Station	-16	26	Mount Washington	3.24	Glencliff 2	.99		
New Jersey	Little Falls	74	7	High Point Park	12	30	1 Station	1.11	2 Stations	1.50		
New Mexico	Fort Sumner	87	10	3 Stations	0	28	Los Alamos	6.60	San Mateo	.55		
New York	Kenton 7	76	7	Schroon River 4 N	-6	27	Westchester County AP	4.66	Avon	.68		
North Carolina	2 Stations	84	18	1 Station	19	29	Goldsboro 1 SSW	6.97	Enka	1.75		
North Dakota	4 Stations	78	3	Willow City	-32	31	1 Station	1.29	1 Station	.25		
Ohio	2 Stations	73	6	1 Station	11	29	Waterloo	1.03	Sidney 1 S	.75		
Oklahoma	3 Stations	89	1	Keystone Dam	18	28	1 Station	13.23	1 Station	.62		
Oregon	2 Stations	77	8	1 Station	-15	13	1 Station	14.47	Silver Lake Ranger Sta	.12		
Pennsylvania	Morgantown	78	6	Bradford FAA AP	6	26	Confluence 1 SW Dam	3.35	1 Station	.59		
Puerto Rico	1 Station	94	9	Cayey 1 E	54	30	Pico Del Este	19.99	1 Station	.53		
Rhode Island	Providence WSO AP	69	18	North Foster 1 E	15	26	Kingston	4.92	Block Island WSO AP	1.78		
South Carolina	Charleston WSO AP	86	18	2 Stations	28	27	Caesars Head	4.64	1 Station	1.46		
South Dakota	Gregory	83	2	1 Station	-20	20	1 Station	2.36	1 Station	.12		
Tennessee	2 Stations	83	1	Moscow	19	9	Samburg Wildlife Refuge	7.35	Cleveland 6 NNE	2.26		
Texas	Presidio	90	3	Lipscomb	15	28	Negley 4 SSW	11.65	Mission 4 W	.14		
Utah	Dewey	80	10	1 Station	-18	16	Bryce Canyon N P 1 S	6.64	Windover Autob	.70		
Vermont	Rochester	73	7	West Burke	-9	27	1 Station	3.26	Huntington Center	.65		
Virginia	3 Stations	80	7	Monterey	17	29	Tangier Island	5.65	1 Station	1.72		
Virgin Islands	Christiansted Fort	92	13	Alex Hamilton Field FAA	62	27	Fountain	7.40	1 Station	1.85		
Washington	Little Goose Dam	74	8	2 Stations	-1	18	Baring	14.24	Quincy 1 S	.10		
West Virginia	Dunlow 6 SE	78	13	Canaan Valley	15	20	Rowlesburg 1	4.69	1 Station	1.37		
Wisconsin	5 Stations	76	5	Jump River 5 E	-26	30	1 Station	3.70	1 Station	1.06		
Wyoming	4 Stations	75	8	Big Piney	-27	16	1 Station	2.76	Shirley Basin Station	.12		



## METRIC UNITS

State and Station	Pressure		Temperature					Precipitation					Wind		No. of days (sunrise to sunset)																					
	Elevation (ground)	Station Ø	Sea level	Average maximum °C	Average minimum °C	Average °C	Departure from normal °C	Highest		Date	Lowest	Date	No. of days				Average dew point °C	Average relative humidity %	Total mm	Departure from normal mm	Greatest in 24 hours	With thunderstorms 25 mm. or more	No. of days	Snow, ice pellets		Resultant speed mi./h.	Resultant direction	Fastest mile (1.6 kilometers)								
								Direction	Speed				Date	Min. 0 °C or lower	Max 32.2 °C or above	No. of days								Total	Maximum depth on ground			Direction	Speed							
																														Direction	Speed	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)
Direction	Speed	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																														

ALABAMA	BIRMINGHAM	207	1007.8	1012.7	0.1	-6.4	-3.2	2.9	7.2	26	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
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# CLIMATOLOGICAL DATA

METRIC UNITS

NOVEMBER 1978

State and Station	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Station	Sea level	Average maximum		Average minimum		Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours				No. of days		Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
			°C	°F	°C	°F						°C	°F						°C	°F		°C	°F						°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
																																									Max 32.2 °C or above	Min 0 °C or lower	With thunderstorms	Maximum depth on ground																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Elevation (ground)	m	mb	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	mm	in	mm	in	mm	in	mm	in	mm	in	m/s	mph	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm



## CLIMATOLOGICAL DATA

METRIC UNITS

NOVEMBER 1978

State and Station	Elevation (ground)	Pressure		Temperature								Precipitation				Wind				No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)											
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	No. of days		Average dew point	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Snow, ice pellets	Resultant speed				Resultant direction	Fastest mile (1.6 kilometers)	Direction								
										Max 32.2 °C or above	Min. 0 °C or lower																						
																				°C	°C					°C	°C	°C	°C	°C	°C	°C	mm
ILLINOIS SPRINGFIELD	179	998.3	1020.9	11.7	2.9	7.3	1.8	27.8	4	-5.6	28	0	8	1.7	70	54	0	18	11	1	0.4	21	13.0	SW	17	10	3	17	6.5	41			
INDIANA EVANSVILLE	116	1006.8	1021.1	14.8	4.1	9.4	2.3	29.6	13	-2.2	28+	0	7	3.9	72	123	43	45	11	0	0.4	29	13.0	SW	17	9	7	14	6.3	56			
FORT WAYNE	241	990.9	1021.6	10.4	0.5	5.5	0.9	22.8	5+	-8.3	28+	0	15	0.6	75	77	10	36	9	1	0.8	24	16.5	SW	17	8	5	17	7.0	46			
INDIANAPOLIS	241	991.5	1021.4	12.8	2.4	7.6	2.2	24.4	5	-8.4	29	0	18	3.9	80	60	-18	27	9	0	0.1	25	14.3	SW	17	6	7	18	6.9	38			
SOUTH BEND	236	991.9	1020.4	10.4	1.7	4.1	1.8	24.4	5	-18.8	28	0	12	1.7	78	71	2	16	11	1	1.3	21	14.3	SW	17	6	7	17	7.0				
IOWA BURLINGTON	211	985.1	1020.9	9.3	0.0	4.7	0.3	24.4	4	-10.6	28	0	17	-1.1	68	67	24	19	12	1	0.6	28	9.4	SW	17+	8	7	15	6.6	42			
DES MOINES	286	980.0	1020.9	8.6	-0.9	3.9	0.7	24.4	3	-13.9	28	0	18	-0.1	73	80	44	30	13	0	147	102	12.1	NW	27	6	4	20	7.4				
DUBUQUE	322	981.0	1020.9	7.0	-2.8	2.1	-0.1	22.8	3	-15.4	30+	0	21	-0.1	73	74	11	30	12	0	203	76	10.2	NW	5	6	2	22	7.4	43			
SIoux CITY	334	980.4	1021.4	6.3	-5.1	0.7	-1.7	27.2	3	-17.8	28	0	23	-3.9	75	18	5	10	17	0	119	102	0.9	NW	5	6	2	22	7.4				
WATERLOO	265	988.5	1021.4	6.6	-4.1	1.3	-0.4	24.4	3	-16.7	28	0	20	-2.2	78	94	39	11	0	231	76	0.8	31	10.7	NW	5	6	18	7.4				
KANSAS CONCORDIA	448	966.1	1020.2	10.0	-0.2	4.9	0.0	26.7	4+	-8.9	20	0	16	0.0	74	52	32	20	11	0	20	9	15.6	SW	13	8	4	18	6.9	52			
RUDGE CITY	787	926.9	1019.1	11.3	0.7	6.0	0.0	27.2	3	-7.8	21+	0	17	1.7	81	32	17	14	11	0	0	0.3	9	14.8	SW	28	6	7	17	7.0	46		
GODDARD	1114	889.3	1019.1	7.8	-3.7	2.1	-1.6	24.4	8	-11.1	21+	0	23	-2.2	81	17	4	22	10	0	91	51	10.3	SW	17	7	16	6.4		45			
TOPEKA	267	988.2	1020.4	11.6	0.6	6.1	0.1	27.8	4	-7.2	28	0	16	1.1	74	52	50	22	10	0	0	0.5	10.3	SW	29+	6	5	19	7.2		45		
WICHITA	403	971.2	1019.9	12.4	2.0	7.2	0.1	27.2	4	-4.4	21	0	15	2.2	75	56	26	15	10	1	0	0.5	5	14.3	SW	28	9	3	18	6.7	42		
KENTUCKY COVINGTON	265	989.5	1021.5	13.1	2.9	8.0	1.4	22.2	13+	-6.4	29	0	8	3.9	77	66	-10	19	9	0	0	0.3	26	11.2	SW	17	7	6	17	6.8		51	
LEXINGTON	294	985.1	1020.9	13.8	4.4	9.1	2.1	23.3	13	-2.2	25	0	7	5.6	80	79	-6	28	8	0	0	0.5	17	12.5	SW	17	5	8	17	7.0		51	
LOUISVILLE	145	1003.1	1020.9	14.9	5.1	10.0	2.8	25.0	13	-2.8	25	0	3	5.6	77	131	44	48	10	0	0	1.1	33	13.4	SW	17	5	8	17	7.0		51	
LOUISIANA BATON ROUGE	20	1016.6	1019.1	23.4	11.4	17.4	2.7	29.4	1	3.9	9	0	0	12.8	79	125	28	84	9	2	0	0.7	7	7.2	SW	26	7	9	14	6.2		61	
LAKE CHARLES	3	1017.6	1018.8	23.6	12.4	18.0	2.3	30.6	1	4.4	9	0	0	12.8	79	105	2	63	8	3	0	1.2	7	8.9	SW	26+	10	3	17	6.3		38	
NEW ORLEANS	1	1018.0	1018.9	24.9	16.1	19.5	3.9	29.4	16	4.4	9	0	0	14.4	76	119	20	102	8	3	0	1.0	8	8.9	SW	26+	10	7	13	5.9		38	
SHREVEPORT	77	1009.5	1019.0	21.4	9.6	15.6	2.1	28.9	4+	1.1	9	0	0	11.7	81	106	15	35	13	2	0	0.3	10	8.9	SW	26	8	4	18	6.5		38	
MAINE CARIBOU	190	995.3		2.5	-7.3	-2.4	-2.1	16.1	6	-19.4	27	0	27	-2.2	75	47	-42	20	10	0	234	229			7	10	13	6.3			62		
PORTLAND	13	1019.3	1021.7	7.9	-3.0	2.4	-1.2	19.4	18	-13.9	23	0	20	-2.2	75	57	-66	24	11	0	91	51	1.1	30	12.5	NW	26	9	10	11	6.0		62
MARYLAND BALTIMORE	45	1016.3	1022.0	14.4	4.1	9.3	1.4	25.0	6	-3.9	29	0	6	3.9	71	69	-11	20	11	0	94	102	0.9	34	11.6	NW	25	7	5	18	6.8		38
MASSACHUSETTS BLUE HILL '85 R	192																																48
BOSTON	5	1020.7	1021.5	8.9	0.8	4.9	-0.8	20.0	18	-10.6	27	0	12			58	-71	14	13	0	191	51	19.7	SW	18	9	6	15	6.1		52		
WORCESTER	301	983.1		8.3	-6.4	4.0	-0.4	21.1	6	-10.6	27	0	15	-2.2	68	59	-66	16	13	0	137	76	12.5	SW	18	8	8	14	6.3		52		
MICHIGAN ALPENA	210	993.2	1019.3	6.8	-2.3	2.2	0.6	24.4	5	-11.1	30	0	20	-1.7	77	39	-23	11	13	0	198	102	1.1	24	12.5	SE	29	4	5	21	7.9		30
DETROIT	189																																40
DETROIT METRO	193	995.9	1020.7	9.5	1.6	5.5	0.2	28.2	5	-15.2	28	0	13	0.0	71	61	2	21	11	0	155	102	1.2	25	17.9	SW	17	7	6	17	6.9		40
FLINT	235	991.5	1020.0	9.1	0.5	4.7	0.1	24.2	5	-13.7	28	0	16	0.6	79	46	-25	16	8	2	157	127	1.3	23	16.1	SW	17	6	19	7.1		32	
GRAND RAPIDS	239	990.5	1020.6	7.8	-1.7	3.1	-0.6	24.9	5	-8.3	28+	0	18	-0.7	79	46	-25	16	8	2	157	127	1.3	23	16.1	SW	17	5	6	19	7.5		32
HOUGHTON LAKE	350	976.6	1020.0	6.4	-2.2	2.2	0.8	21.1	5	-7.9	28+	0	21	-1.1	83	33	-32	10	12	0	267	102	1.1	25	13.4	SW	17	5	6	19	7.6		38
LANSING	256	987.8	1020.4	8.9	-0.3	4.3	0.8	23.9	5	-7.2	29	0	16	1.1	84	66	23	9	0	178	102	1.5	24	17.9	SW	17	5	6	19	7.6		38	
MARQUETTE U	206																																35
MUSKEGON	191	996.6	1020.3	4.8	-0.7	1.2	-0.1	23.3	3	-13.9	30	0	22	-1.1	75	69	-7	23	16	0	330	203	0.9	23	14.3	SW	18+	8	5	18	7.2		38
SAULT STE MARIE	220	991.5	1019.1	4.5	-4.8	-0.1	-0.6	18.9	3	-15.6	26	0	23	-0.9	78	66	-17	17	15	0	198	102	0.9	23	14.3	SW	18	5	4	21	7.8		28
MINNESOTA DULUTH	435	966.5	1019.8	1.2	-7.7	-3.2	-1.2	21.1	3	-24.4	30	0	25	-8.3	67	32	-12	11	13	2	257	127	1.5	26	14.3	SW	13	6	4	20	7.1		47
INTERNATIONAL FALLS	359	974.6	1019.7	-1.0	-11.8	-6.4	-2.4	19.4	2	-32.2	30	0	28	-10.0	75	41	8	16	14	0	533	356	1.2	25	10.7	SW	5	7	5	18	7.1		47



## NOVEMBER 1978

## METRIC UNITS

NOVEMBER 1978

[illegible]



## CLIMATOLOGICAL DATA

METRIC UNITS

NOVEMBER 1978

State and Station	Pressure			Temperature						Precipitation						Wind				No. of days (sunrise to sunset)		Possible sunshine (sky cover, tenths)																		
	Station ID	Sea level	°C	Average		Departure from normal		Highest	Date	No. of days		Average relative humidity	Total mm	Departure from normal mm	Greatest in 24 hours mm	25 mm. or more No. of days	Snow, ice pellets mm	Maximum depth on ground mm	Resultant speed m/s				Resultant direction	Fastest mile (1.6 kilometers)	Direction	Date														
				°C	°F	°C	°F			°C	°F									°C	°F						°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
PENNSYLVANIA PHILADELPHIA PITTSBURGH SCRANTON WILLIAMSBURG	2	1021.0	1022.2	13.3	4.4	8.8	0.9	20.0	14	-3.9	27	0	3	3.3	70	56	-30	22	11	0	64	51	1.2	36	NW 25	7	2	21	7.2	45										
	347	997.3	1022.0	10.6	1.6	6.1	0.9	20.6	6	-5.0	29	0	12	0.6	79	41	-22	15	10	0	88	51	0.8	37	23 18	5	6	19	7.6	28										
	283	997.3	1022.0	10.6	1.6	6.1	0.9	20.6	6	-5.0	29	0	12	0.6	79	41	-22	15	10	0	88	51	0.8	37	23 18	5	6	19	7.6	28										
	1003.1	1022.5	11.4	1.6	6.5	1.2	0.6	20.6	5	-7.2	29	0	4	0.6	79	49	-50	16	12	0	199	51	0.5	31	28 28	5	5	20	7.3	43										
RHODE ISLAND BLACK ISLAND PROVIDENCE	34	1019.4	1022.1	10.7	5.3	8.0	0.2	17.2	18	-5.0	27	0	3	1.1	76	49	-65	18	8	0	7	25	1.6	34	26 28	9	5	16	6.3	59										
	16	1019.4	1022.1	10.4	1.1	5.7	-0.6	20.6	18	-7.8	27	0	13	1.1	76	66	-49	26	10	0	58	25	10.7	21 14	26 28	9	5	16	6.3	59										
SOUTH CAROLINA CHARLESTON CHARLESTON COLUMBIA GAINESVILLE-SPOTSBURG	12	1018.6	1020.7	23.2	11.6	17.4	3.9	30.0	18	2.2	24	0	0	12.2	77	47	-7	41	6	0	0	0	1.5	1	12.5	20 27	5	6	19	7.4	60									
	63	1018.6	1020.7	23.2	11.6	17.4	3.9	30.0	18	2.2	24	0	0	12.2	77	47	-7	41	6	0	0	0	1.5	1	12.5	20 27	5	6	19	7.4	60									
	63	1018.6	1020.7	23.2	11.6	17.4	3.9	30.0	18	2.2	24	0	0	12.2	77	47	-7	41	6	0	0	0	1.5	1	12.5	20 27	5	6	19	7.4	60									
	292	905.8	1020.9	18.6	7.6	13.1	2.6	28.0	6	4.4	26	0	0	6.7	73	49	-30	15	9	0	0	0	0.7	4	9.4	7 3	7	3	20	7.0	57									
	292	905.8	1020.9	18.6	7.6	13.1	2.6	28.0	6	4.4	26	0	0	6.7	73	49	-30	15	9	0	0	0	0.7	4	9.4	7 3	7	3	20	7.0	57									
SOUTH DAKOTA ABERDEEN HOBOKEN SIOUX CITY SIOUX FALLS	395	972.6	1020.6	2.3	-11.0	-4.3	-3.4	23.3	8	-25.0	21	0	29	-7.2	70	20	4	7	11	0	224	127	0.8	32	NW 13	4	6	20	7.4	39										
	390	972.6	1020.6	5.1	-8.4	-1.6	-1.6	24.4	5	-21.1	28	0	28	-7.2	70	19	-10	3	6	0	89	51	1.6	35	NW 13	4	6	20	7.4	39										
	964	907.8	1021.3	4.6	-7.7	-1.6	-3.0	24.4	5	-19.4	28	0	25	-6.7	66	12	-6	7	6	0	74	25	0.6	33	NW 13	4	6	20	7.4	39										
	432	907.8	1021.3	4.6	-7.7	-1.6	-3.0	24.4	5	-19.4	28	0	25	-6.7	66	12	-6	7	6	0	74	25	0.6	33	NW 13	4	6	20	7.4	39										
TENNESSEE BARTON CHATTANOOGA KNOXVILLE MEMPHIS NASHVILLE DAN RING	459	964.5	1021.4	17.1	4.1	10.6	2.9	28.0	14	-1.1	25	0	2	5.0	74	67	-4	14	11	0	0	0	0.2	33	7.6	29 24	6	11	13	6.5	43									
	203	995.0	1020.7	18.6	6.8	12.7	3.3	28.0	6	1.7	25	0	0	7.8	78	72	-28	22	18	0	0	0	0.2	2	8.9	22 17	8	5	17	6.8	49									
	299	995.0	1020.7	18.6	6.8	12.7	3.3	28.0	6	1.7	25	0	0	7.8	78	72	-28	22	18	0	0	0	0.2	2	8.9	22 17	8	5	17	6.8	49									
	79	1010.2	1020.3	19.7	8.9	14.3	3.6	27.2	5	-1.7	28	0	0	6.1	63	14	42	69	11	0	0	0	0.3	11	10.3	25 17	9	5	16	6.3	59									
	180	994.6	1020.6	17.7	6.3	12.0	2.9	25.0	13	-0.6	25	0	2	7.2	76	102	14	42	69	11	0	0	0.1	23	10.3	17 17	8	5	16	6.3	43									
TEXAS ABILENE AUSTIN DALLAS DALLAS FORT WORTH HOUSTON HOUSTON INTERCON LUBBOCK MCKINNEY SAN ANTONIO SAN ANTONIO SAN ANTONIO VICTORIA WACO WICHITA FALLS	544	959.0	1019.2	18.2	7.6	12.9	0.7	28.9	10	-1.1	28	0	1	7.2	73	24	-7	9	11	3	0	0	1.0	16	13.9	N 6	8	5	16	6.5	39									
	198	992.0	1019.0	13.2	1.9	7.6	-0.4	26.7	9	-0.1	28	0	14	3.3	79	12	-7	8	14	6	0	0	0.7	14	12.1	22 28	6	5	19	7.2	43									
	182	992.0	1019.0	20.9	10.8	15.9	0.8	28.3	14	-2.2	27	0	0	1.7	71	13	-8	14	6	0	0	0	0.7	14	12.1	22 28	6	5	19	7.2	43									
	15	1014.3	1017.7	20.5	16.2	21.6	1.7	31.1	16	7.8	28	0	0	1.2	79	21	-23	10	5	0	0	0	0.7	14	12.1	22 28	6	5	19	7.2	43									
	168	997.6	1018.9	19.9	18.2	20.3	2.2	29.8	15	0.2	28	0	0	1.6	79	46	18	45	17	2	0	0	0.7	14	12.1	22 28	6	5	19	7.2	43									
UTAH ALBANY CANYON																																								



## METRIC UNITS

- 11 -

State and Station	Pressure			Temperature							Precipitation						Wind				No. of days (sunrise to sunset)										
	Elevation (ground)	Station ID	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total				Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)						
											Max 32.2 °C or above	Min. 0 °C or lower							°C	°C	°C	°C			°C	°C	mm	mm	mm	mm	mm
	m	mb	mb	°C	°C	°C	°C	°C	°C	°C	°C	°C	%	mm	mm	mm	mm	mm	mm	mm	m/s		m/s								
	VIRGINIA	350	979.0	1021.7	15.6 15.3	3.8 7.3	9.7 11.3	1.6 1.6	25.0 22.8	6 18	-1.7 0.6	29 26	0 0	5 0	3.9	72	65 129	2 51	20 30	8 12	0 0	41 0	T 0	0.3	34	12.1 21.0	31.24 NNE 4	Cloudy, 8-10	Sky cover; months (sunrise to sunset)		
59		1013.5	1020.9	8.3	-1.8	3.3	-3.0	16.7	7+	-12.2	21	0	19	0.6	82	173	-30	43	13	0	376	330	0.8	20	12.5	21.3	5	6	19	7.4	
55		1011.9	1020.3	8.9	0.3	4.7	-2.1	16.1	1	-6.7	21+	0	12	1.7	84	169	-182	39	15	0	182	T	1.1	7	13.0	NE 19	7	5	18	7.1	
6		1015.9	1020.7	8.7	2.4	5.6	-2.1	15.6	7	-3.3	12	0	9	1.1	77	154	4	34	12	0	192	T	1.0	8	16.5	SSW 7+	3	3	18	7.0	
122		1006.1	1020.7	8.4	1.8	5.1	-1.9	15.0	7+	-4.4	12	0	10	1.1	77	154	4	34	12	0	184	102	1.0	8	13.4	SW 4	7	3	18	7.0	
718		935.3	1021.7	1.7	-5.4	-1.8	-3.8	13.3	7	-13.3	15	0	28	-5.6	78	51	-5	15	11	0	1391	127	0.4	14	17.9	SW 4	2	3	25	8.6	
1206		880.5	1021.7	0.6	-5.0	-2.2	-1.7	11.1	7	-11.1	20+	0	27		315	315	-2	55	17	0	1445	660					5	4	21	7.7	
1289		880.5	1021.7	6.2	-1.6	2.3	-3.7	22.2	7	-9.4	11	0	24		60	12	20	10	0	246	229			10.1	M 4	5	4	21	7.7		
321		983.4	1023.1	5.3	-5.1	0.2	-3.4	17.2	7+	-14.4	14	0	26	-6.1	66	24	-3	14	8	0	147	127	0.8	30	13.4	19.3	7	3	20	7.5	
WEST INDIES																															
SAN JUAN P.R.	4	1012.5	1014.8	30.9	24.4	27.7	1.7	35.9	1	22.6	15+	4	0	22.8	78	137	-2	37	23	1	0	0	2.2	9	11.6	E 30	6	19	5	5.4	58
WEST VIRGINIA																															
BECKLEY	763	931.6	1021.2	13.7	3.4	8.6	3.1	22.2	13	-4.4	26	0	7	4.4	80	61	-13	14	11	0	61	25	0.8	20	11.6	26.8	3	7	20	7.9	
CHARLESTON	286	987.1	1021.8	14.9	4.4	9.7	2.2	25.0	13	-2.7	29	0	6	5.0	77	77	-14	35	12	0	51	T	0.4	26	5.8	25.17	3	7	21	7.9	
ELKINS	594	945.9	1021.5	13.3	0.2	6.8	1.9	20.6	14+	-2.7	29	0	19		70	70	-3	22	13	0	T	0	0.1	35	8.0	1.17	5	8	19	7.7	
HUNTINGTON	252	990.9	1021.4	14.1	3.7	8.9	1.4	24.4	13	-2.6	28	0	5	3.3	71	50	-4	19	9	0	T					M 18					38
PARKERSBURG W	187			13.0	2.9	8.0	0.8	21.7	13+	-2.6	29	0	7		50																
WISCONSIN																															
GREEN BAY	208	993.6	1020.0	5.0	-3.9	0.6	-0.6	20.6	3	-16.7	30	0	21	-2.8	79	74	27	39	9	0	244	127	1.7	28	14.3	SW 29	3	8	19	7.6	42
LA CROSSE	198	995.9	1021.3	6.8	-2.7	2.1	0.2	23.9	3	-13.3	30	0	20	-5.0	62	60	23	39	11	0	168		0.8	29	10.7	NE 11+					
MADISON	262	988.2	1020.5	6.1	-4.4	0.8	-0.7	22.8	3	-15.6	30	0	24	-2.2	83	79	30	37	11	0	157	76	0.8	28	10.7	NE 11+	4	10	16	7.2	38
MILWAUKEE	205	994.6	1020.5	7.3	-0.4	3.4	0.9	22.8	5+	-11.7	30	0	17	-1.1	74+	54	3	16	12	0	135	102	1.7	27	16.1	SW 17	7	7	16	6.7	39
WYOMING																															
CASPER	1627	837.1	1020.0	3.3	-9.1	-2.8	-3.9	20.6	8+	-23.3	14	0	26	-9.4	65	24	7	10	6	0	434	203	3.1	24	17.9	22.4	6	9	18	6.9	56
CHEYENNE	1667	810.4	1018.1	6.8	-5.2	0.8	-1.1	19.4	8+	-12.2	11+	0	23	-10.0	52	11	-3	6	7	0	236	127	2.8	27	28.6	M 28	7	9	14	6.4	
LANDER	1696	825.0	1022.6	0.5	-13.1	-6.3	-6.0	20.0	4	-12.6	15	0	28	-12.2	70	55	33	27	7	0	986	508	0.4	20	13.0	M 8	11	6	13	5.9	42
SHERIDAN	1208	875.8	1022.0	1.9	-11.3	-4.7	-5.4	23.3	4	-24.4	19	0	28	-10.0	72	37	13	22	8	0	470	305	1.8	30	18.8	NW 28	8	4	18	6.6	52

## HEATING DEGREE DAYS

(BASE 65 F.)

JANUARY 1976

State and Station	Current season		Normals	State and Station	Current season		Normals	State and Station	Current season		Normals	State and Station	Current season		Normals
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				ALABAMA				ALABAMA				ALABAMA			
BIRMINGHAM U.	213	374	534	BIRMINGHAM	220	374	534	BIRMINGHAM	220	374	534	BIRMINGHAM	220	374	534
HUNTSVILLE	223	414	611	HUNTSVILLE	223	414	611	HUNTSVILLE	223	414	611	HUNTSVILLE	223	414	611
MOBILE	83	73	250	MOBILE	83	73	250	MOBILE	83	73	250	MOBILE	83	73	250
MONTGOMERY	109	181	399	MONTGOMERY	109	181	399	MONTGOMERY	109	181	399	MONTGOMERY	109	181	399
ALASKA				ALASKA				ALASKA				ALASKA			
ANCHORAGE	1153	2691	3202	ANCHORAGE	1153	2691	3202	ANCHORAGE	1153	2691	3202	ANCHORAGE	1153	2691	3202
ANNETTE	780	2041	2084	ANNETTE	780	2041	2084	ANNETTE	780	2041	2084	ANNETTE	780	2041	2084
BARTON	1746	6161	6211	BARTON	1746	6161	6211	BARTON	1746	6161	6211	BARTON	1746	6161	6211
BARTON ISLAND	1726	5945	6037	BARTON ISLAND	1726	5945	6037	BARTON ISLAND	1726	5945	6037	BARTON ISLAND	1726	5945	6037
BETHEL	1223	3606	3824	BETHEL	1223	3606	3824	BETHEL	1223	3606	3824	BETHEL	1223	3606	3824
BETHEL	1076	4142	4774	BETHEL	1076	4142	4774	BETHEL	1076	4142	4774	BETHEL	1076	4142	4774
BIG DELTA	1579	3655	4122	BIG DELTA	1579	3655	4122	BIG DELTA	1579	3655	4122	BIG DELTA	1579	3655	4122
COLD BAY	799	2842	3124	COLD BAY	799	2842	3124	COLD BAY	799	2842	3124	COLD BAY	799	2842	3124
FAIRBANKS	1689	3758	4111	FAIRBANKS	1689	3758	4111	FAIRBANKS	1689	3758	4111	FAIRBANKS	1689	3758	4111
GULIKANA	1624	3477	4213	GULIKANA	1624	3477	4213	GULIKANA	1624	3477	4213	GULIKANA	1624	3477	4213
HOMER	944	2943	3284	HOMER	944	2943	3284	HOMER	944	2943	3284	HOMER	944	2943	3284
JUNEAU	1137	2636	2784	JUNEAU	1137	2636	2784	JUNEAU	1137	2636	2784	JUNEAU	1137	2636	2784
KING SALMON	1042	2995	3404	KING SALMON	1042	2995	3404	KING SALMON	1042	2995	3404	KING SALMON	1042	2995	3404
KODIAK	765	2444	2760	KODIAK	765	2444	2760	KODIAK	765	2444	2760	KODIAK	765	2444	2760
KOTzebue	1470	3862	4537	KOTzebue	1470	3862	4537	KOTzebue	1470	3862	4537	KOTzebue	1470	3862	4537
MC GRATH	1520	3796	4243	MC GRATH	1520	3796	4243	MC GRATH	1520	3796	4243	MC GRATH	1520	3796	4243
NOME	1225	3583	4254	NOME	1225	3583	4254	NOME	1225	3583	4254	NOME	1225	3583	4254
ST. PAUL ISLAND	862	3172	3554	ST. PAUL ISLAND	862	3172	3554	ST. PAUL ISLAND	862	3172	3554	ST. PAUL ISLAND	862	3172	3554
TALKEETNA	1328	3259	3554	TALKEETNA	1328	3259	3554	TALKEETNA	1328	3259	3554	TALKEETNA	1328	3259	3554
UNALASKA				UNALASKA				UNALASKA				UNALASKA			
VALDEZ	1049	3038	3341	VALDEZ	1049	3038	3341	VALDEZ	1049	3038	3341	VALDEZ	1049	3038	3341
YAKUTAT	946	2792	2970	YAKUTAT	946	2792	2970	YAKUTAT	946	2792	2970	YAKUTAT	946	2792	2970
ARIZONA				ARIZONA				ARIZONA				ARIZONA			
FLAGSTAFF	907	1705	1792	FLAGSTAFF	907	1705	1792	FLAGSTAFF	907	1705	1792	FLAGSTAFF	907	1705	1792
PHOENIX	148	149	199	PHOENIX	148	149	199	PHOENIX	148	149	199	PHOENIX	148	149	199
TUCSON	213	228	297	TUCSON	213	228	297	TUCSON	213	228	297	TUCSON	213	228	297
WINSTON	573	790	904	WINSTON	573	790	904	WINSTON	573	790	904	WINSTON	573	790	904
YUMA	130	136	104	YUMA	130	136	104	YUMA	130	136	104	YUMA	130	136	104
ARKANSAS				ARKANSAS				ARKANSAS				ARKANSAS			
FORT SMITH	349	492	473	FORT SMITH	349	492	473	FORT SMITH	349	492	473	FORT SMITH	349	492	473
LITTLE ROCK	371	439	589	LITTLE ROCK	371	439	589	LITTLE ROCK	371	439	589	LITTLE ROCK	371	439	589
NO. LITTLE ROCK	316	442	539	NO. LITTLE ROCK	316	442	539	NO. LITTLE ROCK	316	442	539	NO. LITTLE ROCK	316	442	539
CALIFORNIA				CALIFORNIA				CALIFORNIA				CALIFORNIA			
BAKERSFIELD	236	245	331	BAKERSFIELD	236	245	331	BAKERSFIELD	236	245	331	BAKERSFIELD	236	245	331
RISHOP	643	912	884	RISHOP	643	912	884	RISHOP	643	912	884	RISHOP	643	912	884
BLUE CANYON	701	1308	1149	BLUE CANYON	701	1308	1149	BLUE CANYON	701	1308	1149	BLUE CANYON	701	1308	1149
EUREKA U.	503	1540	1494	EUREKA U.	503	1540	1494	EUREKA U.	503	1540	1494	EUREKA U.	503	1540	1494
FRESNO	382	418	435	FRESNO	382	418	435	FRESNO	382	418	435	FRESNO	382	418	435
LONG BEACH	201	205	217	LONG BEACH	201	205	217	LONG BEACH	201	205	217	LONG BEACH	201	205	217
LOS ANGELES	179	185	292	LOS ANGELES	179	185	292	LOS ANGELES	179	185	292	LOS ANGELES	179	185	292
LOS ANGELES U.	209	216	153	LOS ANGELES U.	209	216	153	LOS ANGELES U.	209	216	153	LOS ANGELES U.	209	216	153
MT. SHASTA R.	840	1649	1367	MT. SHASTA R.	840	1649	1367	MT. SHASTA R.	840	1649	1367	MT. SHASTA R.	840	1649	1367
OAKLAND	349	535	639	OAKLAND	349	535	639	OAKLAND	349	535	639	OAKLAND	349	535	639
RED BLUFF	343	371	421	RED BLUFF	343	371	421	RED BLUFF	343	371	421	RED BLUFF	343	371	421
SACRAMENTO	449	511	466	SACRAMENTO	449	511	466	SACRAMENTO	449	511	466	SACRAMENTO	449	511	466
SANDRICO R.	594	890	763	SANDRICO R.	594	890	763	SANDRICO R.	594	890	763	SANDRICO R.	594	890	763
SAN DIEGO	172	102	205	SAN DIEGO	172	102	205	SAN DIEGO	172	102	205	SAN DIEGO	172	102	205
SAN FRANCISCO	371	722	671	SAN FRANCISCO	371	722	671	SAN FRANCISCO	371	722	671	SAN FRANCISCO	371	722	671
SAN FRANCISCO U.	248	782	841	SAN FRANCISCO U.	248	782	841	SAN FRANCISCO U.	248	782	841	SAN FRANCISCO U.	248	782	841
SANTA MARIA	379	729	737	SANTA MARIA	379	729	737	SANTA MARIA	379	729	737	SANTA MARIA	379	729	737
STOCKTON	398	434	451	STOCKTON	398	434	451	STOCKTON	398	434	451	STOCKTON	398	434	451
COLORADO				COLORADO				COLORADO				COLORADO			
ALAMOSA	946	2035	2144	ALAMOSA	946	2035	2144	ALAMOSA	946	2035	2144	ALAMOSA	946	2035	2144
COLORADO SPRINGS	848	1414	1454	COLORADO SPRINGS	848	1414	1454	COLORADO SPRINGS	848	1414	1454	COLORADO SPRINGS	848	1414	1454
DENVER	811	1293	1294	DENVER	811	1293	1294	DENVER	811	1293	1294	DENVER	811	1293	1294
GRAND JUNCTION	747	1151	1140	GRAND JUNCTION	747	1151	1140	GRAND JUNCTION	747	1151	1140	GRAND JUNCTION	747	1151	1140
PUEBLO	778	1190	1116	PUEBLO	778	1190	1116	PUEBLO	778	1190	1116	PUEBLO	778	1190	1116
CONNECTICUT				CONNECTICUT				CONNECTICUT				CONNECTICUT			
BRIDGEPORT	524	910	873	BRIDGEPORT	524	910	873	BRIDGEPORT	524	910	873	BRIDGEPORT	524	910	873
HARTFORD	700	1512	1213	HARTFORD	700	1512	1213	HARTFORD	700	1512	1213	HARTFORD	700	1512	1213
DELAWARE				DELAWARE				DELAWARE				DELAWARE			
WILMINGTON	542	945	865	WILMINGTON	542	945	865	WILMINGTON	542	945	865	WILMINGTON	542	945	865
DIST. OF COLUMBIA				DIST. OF COLUMBIA				DIST. OF COLUMBIA				DIST. OF COLUMBIA			
WASHINGTON DULLER	599	946	943	WASHINGTON DULLER	599	946	943	WASHINGTON DULLER	599	946	943	WASHINGTON DULLER	599	946	943
WASHINGTON NATIONAL	378	579	714	WASHINGTON NATIONAL	378	579	714	WASHINGTON NATIONAL	378	579	714	WASHINGTON NATIONAL	378	579	714
FLORIDA				FLORIDA				FLORIDA				FLORIDA			
APALACHICOLA U.	45	59	180	APALACHICOLA U.	45	59	180	APALACHICOLA U.	45	59	180	APALACHICOLA U.	45	59	180
DAYTONA BEACH	4	4	97	DAYTONA BEACH	4	4	97	DAYTONA BEACH	4	4	97	DAYTONA BEACH	4	4	97
FORT MYERS	0	0	44	FORT MYERS	0	0	44	FORT MYERS	0	0	44	FORT MYERS	0	0	44
JACKSONVILLE	88	114	180	JACKSONVILLE	88	114	180	JACKSONVILLE	88	114	180	JACKSONVILLE	88	114	180
KEY WEST	0	0	0	KEY WEST	0	0	0	KEY WEST	0	0	0	KEY WEST	0	0	0
MIAMI	0	0	13	MIAMI	0	0	13	MIAMI	0	0	13	MIAMI	0	0	13
ORLANDO	0	0	75	ORLANDO	0	0	75	ORLANDO	0	0	75	ORLANDO	0	0	75
PENSACOLA	23	40	221	PENSACOLA	23	40	221	PENSACOLA	23	40	221	PENSACOLA	23	40	221
TALLAHASSEE	76	117	235	TALLAHASSEE	76	117	235	TALLAHASSEE	76	117	235	TALLAHASSEE	76	117	235
TAMPA	2	8	71	TAMPA	2	8	71	TAMPA	2	8	71	TAMPA	2	8	71
WEST PALM BEACH	0	0	27	WEST PALM BEACH	0	0	27	WEST PALM BEACH	0	0	27	WEST PALM BEACH	0	0	27
GEORGIA				GEORGIA				GEORGIA				GEORGIA			
ATLANTA	218	351	540	ATLANTA	218	351	540	ATLANTA	218	351	540	ATLANTA	218	351	540
AUGUSTA	194	306	553	AUGUSTA	194	306	553	AUGUSTA	194	306	553	AUGUSTA	194	306	553
COLUMBUS	184	287	404	COLUMBUS	184	287	404	COLUMBUS	184	287	404	COLUMBUS	184	287	404
Macon	170	161	384	Macon	170	161	384	Macon	170	161	384	Macon	170	161	384
ROME	249	413	650	ROME	249	413	650	ROME	249	413	650	ROME	249	413	650
SAVANNAH	43	98	313	SAVANNAH	43	98	313	SAVANNAH	43	98	313	SAVANNAH	43	98	313
IDAHO				IDAHO				IDAHO				IDAHO			
BOISE	841	1477	1311	BOISE	841	1477	1311	BOISE	841	1477	1311	BOISE	841	1477	1311

# COOLING DEGREE DAYS

(Base 65°F.)

NOVEMBER 1978

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM U	12			HONOLULU	279	3391	2861	GRAND ISLAND	0	1159	1036	CHARLESTON	40	2298	2078
BIRMINGHAM	18	1974	1928	KAHULUI	298	4162	3951	LINCOLN	0	1175	1148	CHARLESTON U	56	2552	2347
HUNTSVILLE	8	1773	1808	KAHULUI	339	4299	3496	NORFOLK	0	1069	925	COLUMBIA	15	1995	2087
MOBILE	44	2850	2567	LIHUE	269	3665	3486	NORTH PLATTE	0	843	802	GRNVLE-SPRNGBRG	15	1559	1573
MONTGOMERY	24	2368	2238					OMAHA	0	1321	1173				
ALASKA				IDAHO				OMAHA (NORTH)	0	1128	949	SOUTH DAKOTA			
ANCHORAGE	0	8		ROISE	0	597	714	SCOTTSBLUFF	0	869	666	ABERDEEN	0	658	566
ANNETTE	0	0	14	LEWISTON	0	676	657	VALENTINE	0	790	736	HURON	0	736	661
BARRON	0	0	0	POCATELLO	0	369	437					RAPID CITY	0	665	661
BARTER ISLAND	0	0	0					NEVADA				SIOUX FALLS	0	743	719
BETHEL	0	0	0	ILLINOIS				FLKO	0	395	342				
BETHEL	0	0	0	CAIRO U	3	1979	1806	ELY	0	205	207	TENNESSEE			
BETHEL	0	21	17	CHICAGO U HARE	0	845	664	FLY	0	390	296	BRISTOL	0	1092	1107
BIG DELTA	0	43	34	CHICAGO MIDWAY	1	982	925	LAS VEGAS	0	3390	2047	CHATTANOOGA	2	1842	1636
COLD BAY	0	0	0	INDIANAPOLIS	0	1045	893	RENO	0	340	329	KNOXVILLE	0	1612	1589
FAIRBANKS	0	37	52	PENNSYLVANIA	0	1093	968	WINNEMUCCA	0	495	407	MEMPHIS	18	2357	2029
GULFANA	0	43	9	ROCKFORD	0	659	714	NEW HAMPSHIRE				NASHVILLE	2	1807	1694
HOMER	0	0	0	SPRINGFIELD	5	1253	1116	CONCORD	0	521	349	OAK RIDGE	0	1244	1367
JUNEAU	0	0	0					MT WASHINGTON OBS	0	0	0				
KING SALMON	0	0	0	INDIANA								TEXAS			
KODIAK	0	0	0	EVANSVILLE	2	1550	1364	NEW JERSEY				ABILENE	23	2999	2466
KOTZEBUE	0	0	0	FORT MYERS	0	898	748	ATLANTIC CITY	0	837	864	AMARILLO	0	1536	1433
MC GRATH	0	2	14	INDIANAPOLIS	0	1300	974	ATLANTIC CITY U	0	633	835	AUSTIN	60	3070	2903
NOME	0	0	0	SOUTH DAKOTA	1	868	695	NEWARK	0	1088	1024	BROWNSVILLE	228	4096	3797
ST. PAUL ISLAND	0	0	0					TRENTON U	0	976	968	CORPUS CHRISTI	177	3635	3437
TALKEETNA	0	8	6	IDAHO				NEW MEXICO				DALLAS FT WORTH	37	2965	2587
UNALASKA	0	0	0	BURLINGTON	0	1006	994	ALBUQUERQUE	0	1398	1316	DEL RIO	49	3343	3063
VALDEZ	0	0	0	DES MOINES	0	1226	928	CLAYTON	0	910	767	EL PASO	2	2356	2098
YAKUTAT	0	0	0	DURHAM	0	713	606	ROSWELL	0	1991	1560	GALVESTON	128	3148	2987
				SIOUX CITY	0	928	932					HOUSTON INTERCON	108	2841	2878
				WATERLOO	0	853	675					LUBBOCK	0	2026	1647
ARIZONA								NEW YORK				MIDLAND	0	2070	2250
FLAGSTAFF	0	152	140	KANSAS				ALBANY	0	456	574	PART ARTHUR	154	3372	2790
PHOENIX	49	4343	3508	CONCORDIA	2	1446	1307	BINGHAMTON	0	454	369	SAN ANGELO	13	2528	2702
TUCSON	78	3184	2816	ROCKFORD CITY	6	1738	1411	BUFFALO	0	540	437	SANTO ANTONIO	79	2983	2987
WINSTON	0	1312	1203	CONCORDIA	0	944	925	NEW YORK U	0	1020	1068	VICTORIA	118	3209	3125
YUMA	70	4421	4189	TOPEKA	3	1434	1361	NEW YORK KENNEDY	0	1042	861	WACO	30	3273	2863
				WICHITA	5	2047	1673	NEW YORK LA GUARDIA	0	919	1048	WICHITA FALLS	17	2808	2611
ARKANSAS								ROCHESTER	0	744	531				
FORT SMITH	6	2260	2027	KENTUCKY				SYRACUSE	0	623	551				
LITTLE ROCK	16	2358	1925	COVINGTON	0	1070	1080					UTAH			
NO. LITTLE ROCK	76	2164	1951	LEXINGTON	0	1190	1197	NORTH CAROLINA				MILFORD	0	558	688
				LOUISVILLE	2	1539	1266	ASHEVILLE	0	973	872	SALT LAKE CITY	0	1018	927
CALIFORNIA								CAPE HATTERAS R	21	1670	1550				
BAKERSFIELD	11	2748	2179	LOUISIANA				CHARLOTTE	1	1695	1596	VERMONT			
BISHOP	0	943	1037	RATON PUJGE	63	2749	2579	GREENSBORO	0	1322	1341	BURLINGTON	0	489	396
BLUE CANYON	0	374	907	LAKE CHARLES	87	2741	2732	RALEIGH	3	1861	1394				
EUREKA U	0	0	0	NEW ORLEANS	110	3010	2695	WILMINGTON	17	2084	1964	VIRGINIA			
FRESNO	0	2029	1671	SHREVEPORT	39	2600	2538					LYNCHBURG	0	1245	1100
LONG BEACH	11	1311	985					NORTH DAKOTA				NORFOLK	3	1526	1441
LOS ANGELES	4	827	615	MAINE				RISHARCK	0	475	487	RICHMOND	0	1572	1353
LOS ANGELES U	17	1497	1185	CARLIN	0	264	128	FARGO	0	604	473	ROANOK	0	1297	1030
MT. SHASTA R	0	252	286	PORTLAND	0	336	752	WILLISTON	0	421	422	WALLOPS ISLAND	0	1062	1107
OAKLAND	0	221	124												
RED BLUFF	6	2200	1904	MARYLAND				OHIO				WASHINGTON			
SACRAMENTO	0	1132	1159	BALTIMORE	0	1274	1108	AKRON	0	767	634	OLYMPIA	0	146	101
SANDERB R	1	880	800					CINCINNATI ABGE DB	0	1177	1188	QUILLAYUTE	0	42	18
SAN DIEGO	11	1276	722	MASSACHUSETTS				CLEVELAND	0	896	613	SEATTLE	0	161	183
SAN FRANCISCO	0	144	108	BLUE HILL OBS R	0	502	457	COLUMBUS	0	968	809	SEATTLE-TACOMA	0	210	129
SAN FRANCISCO U	3	160	38	ROSTON	0	668	661	DAYTON	0	945	936	SPokane	0	326	388
SANTA MARIA	0	98	84	WORCESTER	0	378	387	HANSFIELD	0	805	818	STAMPEDE PASS R	0	754	60
STOCKTON	0	1604	1259					TOLEDO	0	741	685	WALLA WALLA U	0	754	602
				MICHIGAN				YOUNGSTOWN	0	574	518	YAKIMA	0	412	479
COLORADO				ALPENA	0	305	208					WEST INDIES			
ALAMOSA	0	47	88	DETROIT	0	894	743	OKLAHOMA				SAN JUAN P.R.	513	5554	4616
COLORADO SPRINGS	0	589	461	METROIT METRO	0	760	654	OKLAHOMA CITY	7	2418	1876				
DENVER	0	748	625	FLINT	0	591	438	TULSA	14	2535	1949	WEST VIRGINIA			
GRAND JUNCTION	0	1135	1140	GRAND RAPIDS	0	588	575					BECKLEY	0	552	490
PUEBLO	0	1031	981	HOUGHTON LAKE	0	308	250	OREGON				CHARLESTON	1	1114	1055
CONNECTICUT				LANSTING	0	605	535	ASTORIA	0	14	13	ELKINS	0	498	389
BRIARCLIFF	0	771	735	MARQUETTE U	0	302	216	AURUS U	0	277	289	HUNTINGTON	0	1308	1098
HARTFORD	0	657	584	MUSKOGEE	0	405	469	EUGENE	0	235	239	PARKERSBURG U	0	1014	1045
				SAULT STE MARIE	0	125	139	MEDEFOUR	0	557	562				
DELAWARE								PENDLETON	0	528	656	WISCONSIN			
WILMINGTON	0	1016	992	MINESOTA				PORTLAND	0	343	300	GREEN BAY	0	440	386
				DULUTH	0	224	176	SALEM	0	358	232	LA CROSSE	0	820	695
DIST. OF COLUMBIA				INTERNATIONAL FALLS	0	219	176	SEXTON SUMMIT R	0	233	137	MADISON	0	589	460
WASHINGTON DULLES	0	1179	940	MINNEAPOLIS	0	811	585					MILWAUKEE	0	548	450
WASHINGTON NATIONAL	0	1732	1415	ROCHESTER	0	555	474	PACIFIC AREA							
				ST. CLOUD	0	487	426	GUAM TAGUAG R	421	4763	4592	WYOMING			
FLORIDA								JOHNSTON	428	4978	4693	CASPER	0	442	458
APPALACHICOLA U	49	2434	2649	MISSISSIPPI				KOROP R	508	5596	5505	CHEYENNE	0	297	327
DAYTONA BEACH	192	3215	2874	JACKSON	31	2397	2316	KWAJALEIN	507	5731	5649	LANDER	0	408	383
FORT MYERS	284	3710	3805	MERIDIAN	9	2115	2231	MAJURO	475	5422	5405	SHERIDAN	0	290	466
JACKSONVILLE	62	2535	2577					PAGO PAGO	437	5107	4860				
KEY WEST	394	4533	4668	MISOURI				PONAPE R	479	5505	5108				
MIAMI	329	3929	3879	COLUMBIA REGIONAL	5	1520	1265	TRUK MOEN ISLAND	511	5751	5383				
ORLANDO	225</														



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## Average monthly value

NOVEMBER 1978

HOLBROOK, AZ 1012 °C					ALBUQUERQUE, NM 824 MB					AMARILLO, TX 842 MB					ANCHORAGE, AK 1007 MB					ANNETTE, AK 1013 MB				
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Resultant Wind	No. of observations	Dynamic height meters	Temperature °C	Resultant Wind				
			Dew Point °C	Direction tens of deg	Speed m.p.s.		Dew Point °C	Direction tens of deg	Speed m.p.s.		Dew Point °C	Direction tens of deg	Speed m.p.s.		Dew Point °C	Direction tens of deg	Speed m.p.s.		Dew Point °C	Direction tens of deg	Speed m.p.s.			
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	
1000	1	1000	-1.1	140	20	3	1000	4	1.1	13	20	10	1.00	4	-1.1	140	20	3	1000	4	-1.1	140	20	

BUFFALO, NY 916 MB										SOUTHVILLE, LA 1018 MB										BROOKSVILLE, TX 1016 MB										BUFFALO, NY 995 MB										CAPE HATTERAS, NC 1020 MB									
1000	30	671	43	-6.4	15	1.0	30	1	17.9	16.2	04	2.0	20	7	18.7	16.6	07	41	30	218	2.8	-2	22	1.4	30	4	14.9	13.0	03	2.7																			
1000	30					30	157	19.4	15.4	04	2.2	20	139	16.6	17.0	13	1.5	7	249	-6	-4	25	30	172	15.6	12.2	02	3.0																					
950	30	59	30			30	59	19.1	12.7	15	2.1	30	5	5.2	16.3	15.3	15	5.7	5	52	25	-1	25	4.2	30	1	1.8	10.0	01	2.5																			
900	30	14.35	2.6			30	4	1.03	1.7	-8.6	15	2.4	30	1.60	16.6	11.1	17	30	1.02	-3	-4	26	7	1.061	11.1	5.5	27	2.5																					
850	30	1.495	-5.9	4		30	1.541	17.7	-4.7	20	2.5	30	1.531	14.6	6.8	18	6.2	30	1.487	-2	-7	21	26	9.3	1.539	10.1	1.1	26	5.0																				
800	30	1.56	-1.1	-7.6	28	3.4	3	2.079	11.2	-2.0	24	3.8	30	2.003	12.9	1.9	19	5.4	30	1.972	-1.4	-9.9	27	10.9	2.041	8.0	-2.0	26	7.4																				
750	30	2.495	-2.5	-10.2	48	4.4	3	2.565	9.5	-6.8	24	4.9	30	2.583	11.1	-3.4	21	4.5	30	2.485	-2.7	-11.9	27	13.8	2.572	5.6	-5.7	26	9.1																				
700	30	3.038	-5.5	-14.1	28	5.7	3	3.156	4.5	-9.4	25	6.4	30	3.165	8.4	-9.6	23	4.4	30	3.031	-4.3	-14.8	27	15.0	3.134	3.1	-9.5	26	11.4																				
650	30	3.519	-8.5	-16.5	28	6.7	3	3.760	3.2	-12.5	25	6.1	30	3.765	4.9	-13.7	25	4.7	30	3.612	-7.2	-17.6	27	16.4	3.731	1.1	-12.2	26	13.7																				
600	30	4.233	-12.1	-21.4	28	7.6	4	4.765	-2	-16.7	25	4.4	30	4.412	7	-15.7	25	5.9	30	4.232	-10.2	-22.5	27	18.8	4.368	3.4	-18.5	26	15.4																				
550	30	4.899	-17.1	-26.8	28	9.5	3	5.097	-10	-26.8	24	6.2	30	5.107	3.7	-19.6	25	6.4	30	4.899	-12.5	-25.9	27	21.4	5.107	1.7	-21.5	26	18.1																				
500	30	5.609	-20.2	-33.6	28	11.5	3	5.911	-6.3	-26.0	24	12.7	30	5.852	-8.4	-23.6	24	6.3	30	5.615	-18.7	-29.7	27	23.4	5.786	-12.8	-26.1	26	18.6																				
450	30	6.358	-25.2	-35.1	24	13.7	3	6.447	-14.9	-27.9	24	14.8	30	6.661	-13.9	-29.5	24	10.9	30	6.394	-23.6	-35.0	27	24.5	6.582	-18.1	-29.4	27	21.0																				
400	30	7.218	-31.7	-42.7	23	15.1	3	7.151	-21.1	-35.7	27	16.2	30	7.584	-20.4	-35.8	25	13.4	30	7.244	-29.7	-41.3	27	26.2	7.452	-24.1	-34.5	27	22.5																				
350	30	8.152	-36.6	-46.0	29	14.7	3	8.051	-28.5	-41.8	26	19.0	30	8.522	-27.7	-42.3	25	16.6	30	8.185	-36.6	-45.4	27	27.1	8.416	-30.9	-41.3	27	25.1																				
300	30	9.191	-43.5			30	16.7	3	9.184	-37.0	-48.4	26	21.6	30	9.607	-36.5	-49.3	26	17.2	30	9.234	-44.2		27	32.2	9.488	-39.7	-48.2	27	27.6																			
250	30	10.386				30	17.7	3	10.381	-47.0		26	24.4	30	10.843	-46.8		26	19.7	30	10.435	-52.4		27	33.6	10.748			27	29.8																			
200	30	11.611				30	18.5	3	11.611	-51.7		24	26.0	30	12.187	-50.7		24	22.1	30	11.851	-58.1		27	30.9	12.151			27	31.1																			
150	30	12.977				30	18.6	3	12.977	-57.0		24	25.4	30	13.118	-56.3		24	21.3	30	12.649	-60.3		27	28.3	12.999			27	24.6																			
100	30	14.342				30	17.7	29	14.039	-67.1		26	23.2	30	14.054	-68.2		24	20.1	29	13.457	-61.2		27	25.7	29	13.945			27	30.7																		
50	30	14.785				29	17.6	29	15.101	-70.2		26	23.6	30	15.140	-71.3		25	16.7	29	14.787	-62.2		27	25.0	29	15.055			27	27.0																		
0	30	16.176				29	15.4	29	16.449	-71.8		26	15.5	29	16.451	-73.9		25	12.3	29	16.161	-63.0		27	23.3	29	16.403			26	19.1																		
80	30	17.563				29	13.8	29	17.768	-71.7		27	8.2	29	17.751	-73.8		24	7.7	25	17.586	-64.0		27	23.7	26	17.740			26	15.5																		
60	30	18.391				24	12.0	28	18.351	-75.2		27	4.0	29	18.471	-70.2		24	3.5	25	18.365	-63.9		27	20.5	26	18.544			27	12.9																		
40	30	19.255				24	10.5	28	19.400	-65.4		27	6.0	29	19.400	-65.4		24	1.0	25	19.333	-63.1		27	18.2	25	19.333			27	11.5																		
20	30	20.081				26	10.0	27	20.003	-67.8		27	4.1	29	20.576	-62.2		27	2.0	25	20.336	-62.2		27	18.6	26	20.600			27	10.9																		
0	30	21.584				30	6.9	21	21.499	-57.5		27	5.6	21	21.467	-58.4		22	1.2	25	21.818	-61.3		27	13.5	25	21.985			27	11.3																		
80	30	23.154				29	10.0	26	22.832	-57.9		27	8.6	21	23.804	-55.2		26	1.1	25	23.613	-59.4		28	13.3	25	23.801			27	14.8																		
60	30	24.004				29	10.0	26	25.015	-50.4		27	10.6	26	24.987	-50.8		29	2.7	24	24.768	-57.7		27	15.4	25	24.970			27	19.4																		
40	30	26.624				29	12.3	25	26.447	-47.8		27	14.0	25	26.452	-47.8		27	4.1	23	26.193	-56.0		27	14.8	23	26.418			27	21.3																		
20	30	28.078				29	14.4	25	28.393	-47.0		27	20.1	25	28.358	-45.9		26	7.2	22	28.004	-53.2		27	19.0	20	28.303			27	27.7																		
0	30	30.771				26	21.7	19	31.142	-42.7		26	27.2	19	31.085	-42.0		26	13.9	11	30.620	-50.8				15	30.383			27	36.6																		



## Average monthly values

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# RAWINSONDE DATA

Average monthly values

NOVEMBER 1978

ELGIN, MI 994 MB										GRAND JUNCTION, CO 513 MB										GREAT FALLS, MT 890 MB										GREEN BAY, WI 994 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Standard pressure surface mb		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction tens of deg		Dynamic height meters	

GREENSBORO, NC 945 MB										C ADALUPE IS., MEXICO 1014 MB										GUAM, MARIANA IS. 997 MB										HILO, HI 1013 MB										HUNTINGTON, WV 992 MB									
STC	30	275	7.7	4.9	61	49	29	23	11.7	11.6	32	5.2	30	111	25.5	23.6	08	2.3	30	10	21.2	19.6	25	1.1	30	246	6.0	2.3	31	.4	30	122	22.2	19.1	24	.6	30	10	21.2	19.6	25	1.1							
13TC																																																	
940	30	610	10.4	5.7	26	1.7	29	573	13.7	5.0	30	3.9	30	533	23.6	21.3	09	6.2	30	568	19.8	17.4	10	1.6	30	601	8.5	4.0	24	2.0	30	1,033	16.9	15.1	10	2.7	30	568	19.8	17.4	10	1.6							
900	30	1,060	9.3	2.9	29	2.3	29	1,026	11.0	.8	30	4.4	30	1,059	20.9	18.0	09	6.2	30	1,033	16.9	15.1	10	1.6	30	1,060	7.4	1.6	25	5.0	30	1,517	5.8	-2.4	26	6.4	30	1,033	16.9	15.1	10	1.6							
850	30	1,533	8.3	-1.0	27	5.4	29	1,502	10.0	-1.0	30	4.4	30	1,520	16.3	6.9	09	5.1	30	1,520	16.2	12.2	12	2.5	30	1,533	6.4	-4.3	26	6.4	30	2,031	12.0	7.3	16	2.3	30	1,520	16.3	6.9	09	5.1							
800	30	2,031	6.8	-4.3	26	8.0	29	2,005	5.4	-7.4	30	5.2	30	2,016	16.3	6.9	09	4.7	30	2,031	12.0	7.3	16	2.3	30	2,031	4.6	-7.7	27	7.5	30	2,570	9.6	2.5	19	2.7	30	2,031	12.0	7.3	16	2.3							
750	30	2,561	4.9	-6.4	26	8.0	29	2,539	6.0	-12.7	30	6.3	30	2,566	13.8	3.4	09	5.4	30	2,570	9.6	2.5	19	2.7	30	2,561	3.1	-10.8	26	9.4	30	3,140	6.5	-4.6	21	3.1	30	2,561	4.9	-6.4	26	8.0							
700	30	3,121	2.2	-12.5	27	10.4	29	3,106	5.9	-14.7	30	6.6	30	3,145	10.7	1.0	10	5.7	30	3,140	6.5	-4.6	21	3.1	30	3,121	2.2	-12.5	27	10.4	29	3,746	3.7	-8.6	22	3.6	30	3,140	6.5	-4.6	21	3.1							
650	30	3,717	-7.7	-17.2	27	12.1	29	3,709	2.5	-17.7	29	5.4	30	3,746	7.3	-2.6	11	6.0	30	3,746	3.7	-8.6	22	3.6	30	3,717	-7.7	-17.2	27	12.1	29	4,415	3.7	-5.1	11	6.1	30	3,746	3.7	-8.6	22	3.6							
600	30	4,317	-10.4	-18.3	27	13.6	29	4,311	-1.2	-21.7	27	5.2	30	4,415	3.7	-5.1	11	6.1	30	4,415	3.7	-5.1	11	6.1	30	4,317	-10.4	-18.3	27	13.6	29	5,083	3.8	-17.5	26	4.7	30	4,415	3.7	-5.1	11	6.1							
550	30	4,917	-11.5	-19.3	27	14.7	29	4,911	-2.3	-23.5	27	7.6	30	5,016	3.8	-17.5	26	4.7	30	5,016	3.8	-17.5	26	4.7	30	4,917	-11.5	-19.3	27	14.7	29	5,616	3.9	-19.3	26	4.8	30	5,016	3.8	-17.5	26	4.7							
500	30	5,516	-13.5	-25.7	27	17.7	29	5,511	-4.5	-26.3	27	8.3	30	5,616	3.9	-19.3	26	4.8	30	5,616	3.9	-19.3	26	4.8	30	5,516	-13.5	-25.7	27	17.7	29	6,216	4.0	-21.5	26	5.0	30	5,616	3.9	-19.3	26	4.8							
450	30	6,116	-15.5	-30.2	27	18.7	29	6,111	-6.5	-31.1	29	8.0	30	6,216	4.0	-21.5	26	5.0	30	6,216	4.0	-21.5	26	5.0	30	6,116	-15.5	-30.2	27	18.7	29	6,816	4.1	-23.5	26	5.1	30	6,216	4.0	-21.5	26	5.0							
400	30	7,426	-25.0	-36.5	27	21.0	28	7,441	-24.5	-39.3	29	7.2	30	7,599	-15.0	-26.8	09	6.8	29	7,526	-19.5	-35.2	26	6.2	30	7,426	-25.0	-36.5	27	21.0	28	8,199	-15.0	-26.8	09	6.8	29	7,526	-19.5	-35.2	26	6.2							
350	30	8,381	-31.9	-42.2	27	25.9	28	8,405	-30.9	-44.8				8,599	-21.7	-33.4	10	6.6	29	8,508	-26.5	-39.0	26	11.9	30	8,381	-31.9	-42.2	27	25.9	28	9,199	-21.7	-33.4	10	6.6	29	8,508	-26.5	-39.0	26	11.9							
300	30	9,455	-40.6	-47.4	27	25.2	27	9,471	-39.9	-49.3				9,713	-30.2	-39.0	10	6.6	29	9,601	-33.5	-46.3	26	11.9	30	9,455	-40.6	-47.4	27	25.2	27	10,313	-30.2	-39.0	10	6.6	29	9,601	-33.5	-46.3	26	11.9							
250	30	10,455	-49.2	-57.1	27	26.7	26	10,708	-47.4	-56.6				10,663	-37.0	-47.0	12	5.6	29	10,849	-37.0	-47.0	12	5.6	29	10,455	-49.2	-57.1	27	26.7	26	11,463	-37.0	-47.0	12	5.6	29	10,849	-37.0	-47.0	12	5.6							
200	30	12,111	-57.6		28	27.4	25	12,115	-55.6					12,463	-43.0		12	5.6	29	12,313	-54.7		26	22.7	27	12,111	-57.6		28	27.4	25	12,863	-43.0		12	5.6	29	12,313	-54.7		26	22.7							
175	29	12,947	-61.2		27	27.0	24	12,999	-59.4					13,310	-60.0		11	7.2	28	13,157	-60.3		27	20.9	25	12,947	-61.2		27	27.0	24	13,867	-60.3		11	7.2	28	13,157	-60.3		27	20.9							
150	28	13,900	-63.6		27	25.1	24	13,956	-63.0					14,255	-67.0		10	8.4	28	14,104	-66.1		27	19.0	25	13,900	-63.6		27	25.1	24	14,761	-66.1		10	8.4	28	14,104	-66.1		27	19.0							
125	28	15,009	-66.8		27	23.6	24	15,066	-67.1					15,329	-76.1		10	10.1	28	15,195	-71.4		27	16.2	23	15,009	-66.8		27	23.6	24	15,686	-71.4		10	10.1	28	15,195	-71.4		27	16.2							
100	28	16,352	-68.4		27	19.6	24	16,406	-69.1					16,592	-82.7		10	13.6	25	16,499	-75.2		29	8.3	23	16,352	-68.4		27	19.6	24	16,986	-75.2		10	13.6	25	16,499	-75.2		29	8.3							
75	27	17,692	-67.6		27	14.3	22	17,736	-68.0					17,843	-80.5		10	12.8	23	17,792	-73.3		34	2.1	23	17,692	-67.6		27	14.3	22	18,236	-73.3		10	12.8	23	17,792	-73.3		34	2.1							
50	27	18,497	-66.4		27	13.1	21	18,536	-67.0					18,606	-75.3		10	10.0	23	18,577	-71.3		38	1.3	22	18,497	-66.4		27	13.1	21	19,029	-71.3		10	10.0	23	18,577	-71.3		38	1.3							
25	26	19,434	-65.4		27	12.7	19	19,478	-66.0					19,513	-70.0		09	5.9	23	19,497	-67.6		40	1.0	22	19,434	-65.4		27	12.7	19	19,931	-67.6		09	5.9	23	19,497	-67.6		40	1.0							
0	26	20,534	-62.9		28	11.4	18	20,589	-62.7					20,611	-64.8		09	3.6	22	20,605	-64.0		11	4.0	21	20,534	-62.9		28	11.4	18	21,031	-64.0		09	3.6	22	20,605	-64.0		11	4.0							
	26	21,936	-60.4		27	9.6	13	21,966	-58.9					21,988	-60.5		08	6.0	21	21,987	-59.3		10	3.7	20	21,936	-60.4		27	9.6	13	22,407	-59.3		08	6.0	21	21,987	-59.3		10	3.7							
	26	23,784	-56.7		27	14.4	16	23,789	-54.6					23,808	-54.5		08	8.5	21	23,813	-54.4		08	5.9	15	23,784	-56.7		27	14.4	16	24,208	-54.4		08	8.5	21	23,813	-54.4		08	5.9							
	26	25,906	-52.7		27	14.7	17	25,913	-51.3					25,943	-51.3		09	10.9	21	25,949	-51.2		08	5.9	15	25,906	-52.7		27	14.7	17	26,353	-51.2		09	10.9	21	25,949	-51.2		08	5.9							
	26	27,745	-51.6		27	21.1	7	26,422	-50.3					26,443	-49.9		09	16.6	19	26,453	-48.4		08	6.4	15	26,745	-51.6		27	21.1	7	26,857	-48.4		09	16.6	19	26,453	-48.4		08	6.4							
	26	28,231	-48.5		27	21.7								28,350	-43.5		08	20.4	14	28,362	-45.3		09	4.0	14	28,231	-48.5		27	21.7						20.4	14	28,362	-45.3		09	4.0							
	14	30,922	-45.7											31,088	-39.8					31,105	-42.3					30,922	-45.7																						

## Average monthly values

[illegible]



## Average monthly values

[illegible]

OMAHA, NE 972 MB										PAGO PAGO, AMERICAN SAMOA 1010 MB										PEORIA, IL 997 MB										PITTSBURGH, PA 978 MB										PONAPE, CAROLINE IS. 1004 MB									
5FC	37	403	-5	-2+8	33	.7	30	5	28.0	24.0	05	2.9	30	200	2.9	-1	07	.2	29	359	3.9	1.6	26	-.5	30	39	28.5	24.6	08	1.6																			
10.0							30	90	26.1	23.1	09	3.3	9	242	1.5	-1.3										30	70	27.7	24.1	08	1.9																		
95C	30	579	2.6	-3+2	31	1.4	30	543	23.0	21.1	06	4.1	30	586	4.0	-1.1	25	3.1	29	599	5.1	1.8	25	2.8	30	524	24.2	21.7	10	3.6																			
90C	30	1,016	2.6	-5+1	29	3.2	30	1,014	20.0	18.1	07	4.1	30	1,028	4.1	-3.3	26	5.7	29	1,040	3.9	-2.1	26	5.9	30	997	21.6	17.8	11	4.1																			
85C	30	1,479	2.8	-6+1	28	5.4	30	1,508	17.4	14.5	06	4.0	30	1,493	3.4	-4.8	26	7.6	29	1,504	3.1	-7.0	26	8.2	30	1,491	13.7	11.6																					
80C	30	1,969	1.8	-6+5	28	7.0	30	2,024	15.3	11.4	05	3.7	30	1,984	1.9	-6.5	26	9.3	29	1,994	1.9	-8.5	27	9.7	30	2,013	16.8	10.6	11	4.2																			
75C	30	2,488	-15	-10+1	27	9.2	30	2,570	12.4	7.1	03	3.2	30	2,503	-.3	-9.3	26	10.2	29	2,514		-11.0	27	12.2	30	2,562	14.1	6.4	11	5.9																			
70C	30	3,037	-3.0	-12+9	27	11.0	30	3,147	9.6	2.8	01	3.1	30	3,053	-2.5	-12.4	26	11.9	29	3,065	-1.6	-15.8	27	13.4	30	3,141	10.7	2.2	10	3.0																			
65C	30	3,621	-5.4	-18+1	27	12.4	30	3,759	6.1	.2	36	3.1	30	3,638	-5.0	-17.7	26	13.9	29	3,652	-4.3	-19.1	27	15.1	30	3,756	7.1	.3	10	6.0																			
60C	30	4,246	-8.8	-2+9	26	13.9	30	4,411	2.6	-3.6	34	2.9	30	4,264	-8.2	-21.7	26	16.3	29	4,279	-7.4	-21.3	27	17.4	30	4,411	3.5	-2.2	10	6.5																			
55C	25	4,915	-12.7	-25+7	26	15.9	30	5,111	-11.1	-7.7	32	4.7	30	4,935	-12.1	-26.9	26	19.0	29	4,952	-11.3	-26.5	27	19.5	30	5,113	3.3	-7.1	09	6.6																			
50C	25	5,645	-17.4	-30+2	26	18.5	30	5,867	-15.2	-13.5	31	6.0	30	5,658	-16.7	-31.8	26	21.0	29	5,677	-16.1	-31.7	27	20.6	30	5,871	4.1	-11.3	09	6.2																			
45C	30	6,416	-22.7	-36+8	26	20.9	30	6,689	-19.7	-18.0	29	6.6	30	6,441	-22.2	-34.9	26	22.7	29	6,462	-21.7	-35.3	27	22.8	30	6,695	-8.9	-16.9	09	6.2																			
40C	30	7,270	-29.0	-41+7	26	23.0	30	7,589	-15.4	-23.4	29	6.9	30	7,296	-28.4	-40.2	26	25.2	29	7,318	-28.0	-40.0	27	25.6	30	7,599	-14.2	-23.1	09	5.5																			
35C	30	8,214	-35.9	-47+5	26	26.0	30	8,587	-22.1	-30.4	29	10.5	30	8,242	-35.6	-45.5	26	27.8	29	8,267	-34.7	-46.5	27	27.7	30	8,603	-20.8	-30.6	09	4.9																			
30C	25	9,259	-43.4	-53+3	26	27.8	30	9,699	-30.5	-40.8	28	12.0	30	9,294	-43.5	-50.1	26	30.9	29	9,323	-42.4	-51.0	27	30.5	30	9,721	-29.0	-40.2	09	4.3																			
25C	25	10,465	-50.7		26	30.8	30	10,967	-47.9	-58.8	28	15.1	30	10,499	-51.2		26	34.0	29	10,532	-51.1		27	36.1	30	10,997	-39.3	-49.6	08	2.7																			
20C	25	11,598	-57.0		26	30.5	29	12,440	-53.6		27	18.7	30	11,925	-58.4		26	37.2	29	11,956	-58.3		27	31.6	30	12,494	-52.9		06	2.9																			
15C	25	12,739	-59.1		26	30.0	29	13,265	-60.2		26	20.4	30	12,762	-60.3		27	35.4	28	12,798	-60.2		27	30.2	30	13,336	-59.0		06	3.7																			
10C	25	13,702	-60.3		26	28.9	29	15,231	-67.3		25	19.9	30	13,720	-61.5		27	31.1	28	13,756	-62.1		27	29.0	30	14,284	-66.9		05	6.1																			
125	29	14,836	-61.6		26	26.4	29	15,311	-74.3		26	17.6	29	14,651	-62.7		27	28.4	28	14,879	-63.9		27	28.1	29	15,367	-74.7		06	9.1																			
130	29	16,211	-63.7		27	22.1	28	16,588	-80.4		27	12.5	29	16,219	-64.9		27	24.3	28	16,244	-64.8		27	24.1	29	16,637	-82.1		07	10.1																			
40	29	17,579	-63.7		27	19.1	27	17,850	-77.6		27	5.1	29	17,580	-64.7		27	21.4	26	17,599	-65.1		27	19.1	28	17,887	-78.1		08	8.2																			
70	29	18,399	-63.6		27	17.2	27	18,625	-72.8		27	4.8	27	18,401	-65.2		27	18.6	26	18,413	-64.8		27	16.9	28	18,663	-71.5		07	2.4																			
80	29	19,341	-63.5		27	19.3	27	19,613	-67.3		27	15.9	26	19,362	-64.9		27	15.9	26	19,356	-64.1		27	15.8	28	19,550	-68.1		24	2.9																			
50	26	20,460	-62.7		27	13.4	24	20,461	-62.9		08	4.4	27	20,459	-63.4		27	15.2	26	20,476	-62.6		28	14.4	28	20,693	-63.3		27	4.7																			
40	24	21,642	-61.8		27	15.0	24	22,052	-58.3		08	5.4	26	21,640	-61.8		28	13.8	24	21,871	-60.9		28	15.8	28	22,079	-59.9		29	2.4																			
30	24	23,630	-59.6		27	13.8	24	23,885	-52.9		06	8.1	25	23,638	-59.2		27	13.2	24	23,667	-59.0		28	13.1	27	23,898	-54.9		09	6.2																			
25	24	24,773	-58.6		27	15.4	22	25,070	-50.4		09	9.2	24	24,784	-57.5		27	16.2	22	24,823	-57.0		27	14.3	27	25,071	-52.0		09	13.8																			
20	24	26,181	-57.2		27	18.1	20	26,538	-46.5		08	12.9	22	26,195	-55.9		27	20.8	21	26,248	-55.2		28	18.1	24	26,528	-48.0		09	22.9																			
15	24	26,002	-55.7		27	28.0	16	26,461	-42.2		06	15.5	20	26,049	-53.2		27	21.7	16	26,102	-51.3		27	24.5	23	28,486	-39.0		08	26.5																			
10	e	30,571	-51.9		12	31.4	24	31.4	-36.1		05	20.9	14	30,770	-47.3		27	18.6	12	30,731	-48.9																												

[illegible]



# RAWINSONDE DATA

Average monthly values

TABLET 27-4

SALEM, OR 900 MB										SALEM, OR 1010 MB										SALEM, CA 1002 MB										SAN JUAN, P. R. 800 MB									
Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.									
500	30	174	5.6	3.8	11	11	30	174	5.6	3.8	11	11	30	174	5.6	3.8	11	11	30	174	5.6	3.8	11	11	30	174	5.6	3.8	11	11									
1000	30	207	5.0	3.6	11	11	30	207	5.0	3.6	11	11	30	207	5.0	3.6	11	11	30	207	5.0	3.6	11	11	30	207	5.0	3.6	11	11									
900	30	501	7.4	1.9	11	11	30	501	7.4	1.9	11	11	30	501	7.4	1.9	11	11	30	501	7.4	1.9	11	11	30	501	7.4	1.9	11	11									
850	30	1,036	6.0	3.1	11	11	30	1,036	6.0	3.1	11	11	30	1,036	6.0	3.1	11	11	30	1,036	6.0	3.1	11	11	30	1,036	6.0	3.1	11	11									
800	30	1,506	5.6	-2.1	11	11	30	1,506	5.6	-2.1	11	11	30	1,506	5.6	-2.1	11	11	30	1,506	5.6	-2.1	11	11	30	1,506	5.6	-2.1	11	11									
750	30	2,000	3.8	-5.5	27	7	30	2,000	3.8	-5.5	27	7	30	2,000	3.8	-5.5	27	7	30	2,000	3.8	-5.5	27	7	30	2,000	3.8	-5.5	27	7									
700	30	2,523	1.6	-9.7	27	9	30	2,523	1.6	-9.7	27	9	30	2,523	1.6	-9.7	27	9	30	2,523	1.6	-9.7	27	9	30	2,523	1.6	-9.7	27	9									
650	30	3,076	-1.5	-13.6	26	16	30	3,076	-1.5	-13.6	26	16	30	3,076	-1.5	-13.6	26	16	30	3,076	-1.5	-13.6	26	16	30	3,076	-1.5	-13.6	26	16									
600	30	3,686	-3.3	-15.5	26	17	30	3,686	-3.3	-15.5	26	17	30	3,686	-3.3	-15.5	26	17	30	3,686	-3.3	-15.5	26	17	30	3,686	-3.3	-15.5	26	17									
550	30	4,296	-6.2	-20.5	26	16	30	4,296	-6.2	-20.5	26	16	30	4,296	-6.2	-20.5	26	16	30	4,296	-6.2	-20.5	26	16	30	4,296	-6.2	-20.5	26	16									
500	30	4,971	-10.4	-24.4	24	14	30	4,971	-10.4	-24.4	24	14	30	4,971	-10.4	-24.4	24	14	30	4,971	-10.4	-24.4	24	14	30	4,971	-10.4	-24.4	24	14									
450	30	5,699	-14.9	-29.4	26	12	30	5,699	-14.9	-29.4	26	12	30	5,699	-14.9	-29.4	26	12	30	5,699	-14.9	-29.4	26	12	30	5,699	-14.9	-29.4	26	12									
400	30	6,487	-20.5	-33.5	24	22	30	6,487	-20.5	-33.5	24	22	30	6,487	-20.5	-33.5	24	22	30	6,487	-20.5	-33.5	24	22	30	6,487	-20.5	-33.5	24	22									
350	30	7,368	-27.1	-39.3	26	24	30	7,368	-27.1	-39.3	26	24	30	7,368	-27.1	-39.3	26	24	30	7,368	-27.1	-39.3	26	24	30	7,368	-27.1	-39.3	26	24									
300	30	8,300	-33.9	-45.6	26	26	30	8,300	-33.9	-45.6	26	26	30	8,300	-33.9	-45.6	26	26	30	8,300	-33.9	-45.6	26	26	30	8,300	-33.9	-45.6	26	26									
250	30	9,359	-41.9	-51.6	26	31	30	9,359	-41.9	-51.6	26	31	30	9,359	-41.9	-51.6	26	31	30	9,359	-41.9	-51.6	26	31	30	9,359	-41.9	-51.6	26	31									
200	30	10,571	-50.5	-58.1	24	32	30	10,571	-50.5	-58.1	24	32	30	10,571	-50.5	-58.1	24	32	30	10,571	-50.5	-58.1	24	32	30	10,571	-50.5	-58.1	24	32									
150	30	12,000	-57.9	-64.3	26	31	30	12,000	-57.9	-64.3	26	31	30	12,000	-57.9	-64.3	26	31	30	12,000	-57.9	-64.3	26	31	30	12,000	-57.9	-64.3	26	31									
100	30	12,837	-60.3	-67.1	27	31	30	12,837	-60.3	-67.1	27	31	30	12,837	-60.3	-67.1	27	31	30	12,837	-60.3	-67.1	27	31	30	12,837	-60.3	-67.1	27	31									
50	30	13,793	-62.3	-69.1	27	40	30	13,793	-62.3	-69.1	27	40	30	13,793	-62.3	-69.1	27	40	30	13,793	-62.3	-69.1	27	40	30	13,793	-62.3	-69.1	27	40									
0	30	14,937	-63.7	-70.7	27	45	30	14,937	-63.7	-70.7	27	45	30	14,937	-63.7	-70.7	27	45	30	14,937	-63.7	-70.7	27	45	30	14,937	-63.7	-70.7	27	45									
10	30	16,277	-66.1	-72.9	27	21	30	16,277	-66.1	-72.9	27	21	30	16,277	-66.1	-72.9	27	21	30	16,277	-66.1	-72.9	27	21	30	16,277	-66.1	-72.9	27	21									
20	30	17,631	-68.5	-75.1	27	17	30	17,631	-68.5	-75.1	27	17	30	17,631	-68.5	-75.1	27	17	30	17,631	-68.5	-75.1	27	17	30	17,631	-68.5	-75.1	27	17									
30	30	18,441	-65.9	-72.9	27	15	30	18,441	-65.9	-72.9	27	15	30	18,441	-65.9	-72.9	27	15	30	18,441	-65.9	-72.9	27	15	30	18,441	-65.9	-72.9	27	15									
40	30	19,378	-64.8	-71.9	27	13	30	19,378	-64.8	-71.9	27	13	30	19,378	-64.8	-71.9	27	13	30	19,378	-64.8	-71.9	27	13	30	19,378	-64.8	-71.9	27	13									
50	30	20,404	-63.5	-70.7	27	11	30	20,404	-63.5	-70.7	27	11	30	20,404	-63.5	-70.7	27	11	30	20,404	-63.5	-70.7	27	11	30	20,404	-63.5	-70.7	27	11									
60	30	21,804	-62.1	-69.1	27	10	30	21,804	-62.1	-69.1	27	10	30	21,804	-62.1	-69.1	27	10	30	21,804	-62.1	-69.1	27	10	30	21,804	-62.1	-69.1	27	10									
70	30	23,673	-58.6	-65.9	26	13	30	23,673	-58.6	-65.9	26	13	30	23,673	-58.6	-65.9	26	13	30	23,673	-58.6	-65.9	26	13	30	23,673	-58.6	-65.9	26	13									
80	30	24,872	-56.9	-64.8	27	15	30	24,872	-56.9	-64.8	27	15	30	24,872	-56.9	-64.8	27	15	30	24,872	-56.9	-64.8	27	15	30	24,872	-56.9	-64.8	27	15									
90	30	26,243	-55.3	-63.5	27	20	30	26,243	-55.3	-63.5	27	20	30	26,243	-55.3	-63.5	27	20	30	26,243	-55.3	-63.5	27	20	30	26,243	-55.3	-63.5	27	20									
100	30	28,092	-51.6	-60.3	27	25	30	28,092	-51.6	-60.3	27	25	30	28,092	-51.6	-60.3	27	25	30	28,092	-51.6	-60.3	27	25	30	28,092	-51.6	-60.3	27	25									
110	30	30,726	-47.7	-57.9	27	19	30	30,726	-47.7	-57.9	27	19	30	30,726	-47.7	-57.9	27	19	30	30,726	-47.7	-57.9	27	19	30	30,726	-47.7	-57.9	27	19									

SAULT STE MARIE, MI 992 MB										SPRING, MO 975 MB										DUMFRIES, FL 1017 MB										TULSA, OK 1000 MB										TULSA, OK 1015 MB									
Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction of wind	Speed m.p.s.																			
500	30	221	-2.2	-5.9	03	3	30	221	-2.2	-5.9	03	3	30	221	-2.2	-5.9	03	3	30	221	-2.2	-5.9	03	3	30	221	-2.2	-5.9	03	3																			
1000	6	261	-9.5	-13.5			6	261	-9.5	-13.5			6	261	-9.5	-13.5			6	261	-9.5	-13.5			6	261	-9.5	-13.5																					
950	30	566	-1.9	-6.0	25	1.8	30	566	-1.9	-6.0	25	1.8	30	566	-1.9	-6.0	25	1.8	30	566	-1.9	-6.0	25	1.8	30	566	-1.9	-6.0	25	1.8																			
900	30	995	-3.5	-8.5	27	4.1	30	995	-3.5	-8.5	27	4.1	30	995	-3.5	-8.5	27	4.1	30	995	-3.5	-8.5	27	4.1	30	995	-3.5	-8.5	27	4.1																			
850	30	1,468	-4.9	-12.5	27	6.8	30	1,468	-4.9	-12.5	27	6.8	30	1,468	-4.9	-12.5	27	6.8	30	1,468	-4.9	-12.5	27	6.8	30	1,468	-4.9	-12.5	27	6.8																			
800	30	1,970	-6.2	-15.1	27	9.2	30	1,970	-6.2	-15.1	27	9.2	30	1,970	-6.2	-15.1	27	9.2	30	1,970	-6.2	-15.1	27	9.2	30	1,970	-6.2	-15.1	27	9.2																			
750	30	2,476	-7.7	-18.7	27	11.6	30	2,476	-7.7	-18.7	27	11.6	30	2,476	-7.7	-18.7	27	11.6	30	2,476	-7.7	-18.7	27	11.6	30	2,476	-7.7	-18.7	27	11.6																			
700	30	2,962	-9.1	-19.7	27	14.2	30	2,962	-9.1	-19.7	27	14.2	30	2,962	-9.1	-19.7	27	14.2	30	2,962	-9.1	-19.7	27	14.2	30	2,962	-9.1	-19.7	27	14.2																			
650	30	3,452	-11.7	-21.4	27	16.8	30	3,452	-11.7	-21.4	27	16.8	30	3,452	-11.7	-21.4	27	16.8	30	3,452	-11.7	-21.4	27	16.8	30	3,452	-11.7	-21.4	27	16.8																			
600	30	3,933	-14.3	-23.9	27	19.1	30	3,933	-14.3	-23.9	27	19.1	30	3,933	-14.3	-23.9	27	19.1	30	3,933	-14.3	-23.9	27	19.1	30	3,933	-14.3	-23.9	27	19.1																			
550	30	4,798	-17.7	-27.2	27	21.6	30	4,798	-17.7	-27.2	27	21.6	30	4,798	-17.7	-27.2	27	21.6	30	4,798	-17.7	-27.2	27	21.6	30	4,798	-17.7	-27.2	27	21.6																			
500	30	5,506	-21.6	-32.3	27	24.6	30	5,506	-21.6	-32.3	27	24.6	30	5,506	-21.6	-32.3	27	24.6	30	5,506	-21.6	-32.3	27	24.6	30	5,506	-21.6	-32.3	27	24.6																			
450	30	6,274	-26.6	-37.7	27	27.8	30	6,274	-26.6	-37.7	27	27.8	30	6,274	-26.6	-37.7</																																	





# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

NOVEMBER 1978

Date	Sun's zenith distance									
	A.M.					P.M.				
	78°	75°	70°	60°	*	60°	70°	75°	78°	
MADISON, WI										
	Air mass									
	4.69	3.75	2.81	1.88	*	1.88	2.81	3.75	4.69	
1-----	S .62	S .69	S .76	S .86	S .89	S .85	S .76	S .66	S .58	
2-----	M .84	M .58	M .69	S .83	M .81	M .79	M .67	M .59	M .49	
3-----	S .67	S .74	S .81	S .89	M .87	S .85	S .77	S .69	S .62	
Aver- ages	.59	.67	.75	.86	.86	.83	.73	.65	.56	
MAUNA LOA OBSERVATORY, HI										
	Air mass									
	3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34	
1-----	1.14	1.22	1.34	1.46	1.59	1.46	1.34	1.22	1.14	
10-----	1.18	1.26	1.35	1.47	1.59	1.47	1.35	1.26	1.18	
16-----	1.24	1.32	1.42	1.53	1.61	1.53	1.42	1.32	1.24	
17-----	1.26	1.34	1.42	1.53	1.61	1.53	1.42	1.34	1.26	
18-----	1.29	1.35	1.44	1.53	1.59	1.53	1.44	1.35	1.29	
19-----	1.29	1.35	1.39	1.53	1.60	1.53	1.39	1.35	1.29	
20-----	1.19	1.28	1.37	1.48	1.58	1.48	1.37	1.28	1.19	
21-----	1.23	1.32	1.41	1.52	1.61	1.52	1.41	1.32	1.23	
22-----	1.29	1.36	1.42	1.53	1.58	1.53	1.42	1.36	1.29	
23-----	1.19	1.28	1.38	1.48	1.58	1.48	1.38	1.28	1.19	
24-----	1.22	1.31	1.41	1.51	1.59	1.51	1.41	1.31	1.22	
Aver- ages	1.23	1.31	1.40	1.51	1.59	1.48	1.35	1.27	1.17	
TUCSON, AZ										
	Air mass									
	4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64	
1-----	.99	1.07	1.21	1.36	1.46	1.36	1.20	1.09	.99	
2-----	.92	1.04	1.17	1.31	1.43	1.34	1.19	1.09	.99	
3-----	.84	.94	1.05	1.27	1.41	1.29	1.12	1.03	.90	
4-----	.96	1.06	1.19	1.35	1.44	1.34	1.13	1.02	.92	
5-----	.93	1.03	1.18	1.31	1.43	1.36	1.20	1.08	.98	
6-----	.96	1.07	1.20	1.36	1.45	1.34	1.17	1.03	.93	
7-----	.91	1.01	1.12	1.31	1.41	1.29	1.14	.99	.86	
8-----	1.03	1.12	1.23	1.39	1.46	1.35	1.18	1.05	.94	
9-----	.97	1.07	1.21	1.40	1.48	1.39	1.10	1.01	.91	
12-----	.93	1.04	1.16	1.34	1.42	1.34	1.10	1.01	.93	
13-----	.93	1.04	1.16	1.34	1.42	1.34	1.10	1.01	.93	
14-----	.81	.92	1.12	1.27	1.35	1.34	1.13	.94	.85	
15-----	1.05	1.14	1.29	1.44	1.50	1.43	1.24	1.07	.96	
16-----	.99	1.08	1.20	1.31	1.40	1.35	1.22	1.09	.98	
17-----	1.06	1.14	1.28	1.42	1.49	1.42	1.23	1.07	.96	
18-----	1.08	1.19	1.31	1.47	1.52	1.44	1.29	1.09	.98	
19-----	1.06	1.14	1.28	1.42	1.49	1.42	1.23	1.07	.96	
20-----	1.08	1.19	1.31	1.47	1.52	1.44	1.29	1.09	.98	
21-----	1.09	1.19	1.31	1.47	1.52	1.44	1.29	1.09	.98	
22-----	.96	1.09	1.22	1.35	1.43	1.35	1.18	1.05	.94	
23-----	.82	1.00	1.12	1.38	1.44	1.31	1.17	1.03	.98	
24-----	.99	1.09	1.21	1.38	1.44	1.35	1.22	1.06	.96	
Aver- ages	.95	1.06	1.19	1.36	1.44	1.36	1.19	1.04	.95	

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . . .	- 35	- 62	- 24	- 35	- 27	- 51	- 16	- 50	- 31	- 63	- 22	- 38	- 9	- 12	- 112	- 125	- 112	- 73	- 17	- 11	- 25	- 26	- 12	- 20	- 40	- 20	- 73	- 20	- 36	- 61	- 42	



# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

o Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

@ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

+ No Storm Data Report received for this State.

◇ Report Incomplete.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

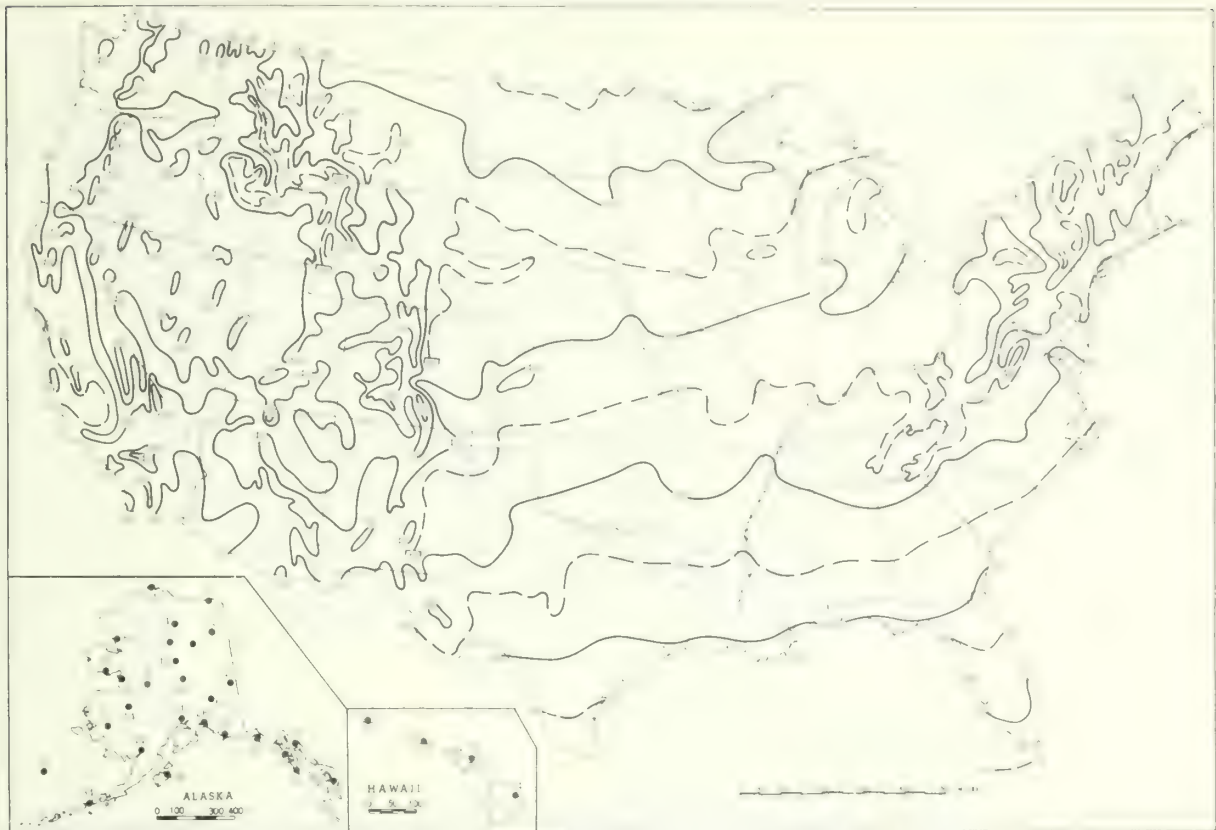
**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
* Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeterminable
BD Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Sand
BN Blowing Sand	GF	Ground Fog	K	Smoke	S	Slight Haze-indeterminable
D Dust	H	Haze	KI	Intense Smoke		
LI Intense Dust	HI	Intense Haze	KM	Moderate Smoke		

**NET RADIATION:** The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), November



B. Temperature Departure from 30 - Year Mean (°F 1941-70), November 1978



Chart II. A. Total Precipitation (Inches), November 1978



B. Percentage of Normal Precipitation, November 1978

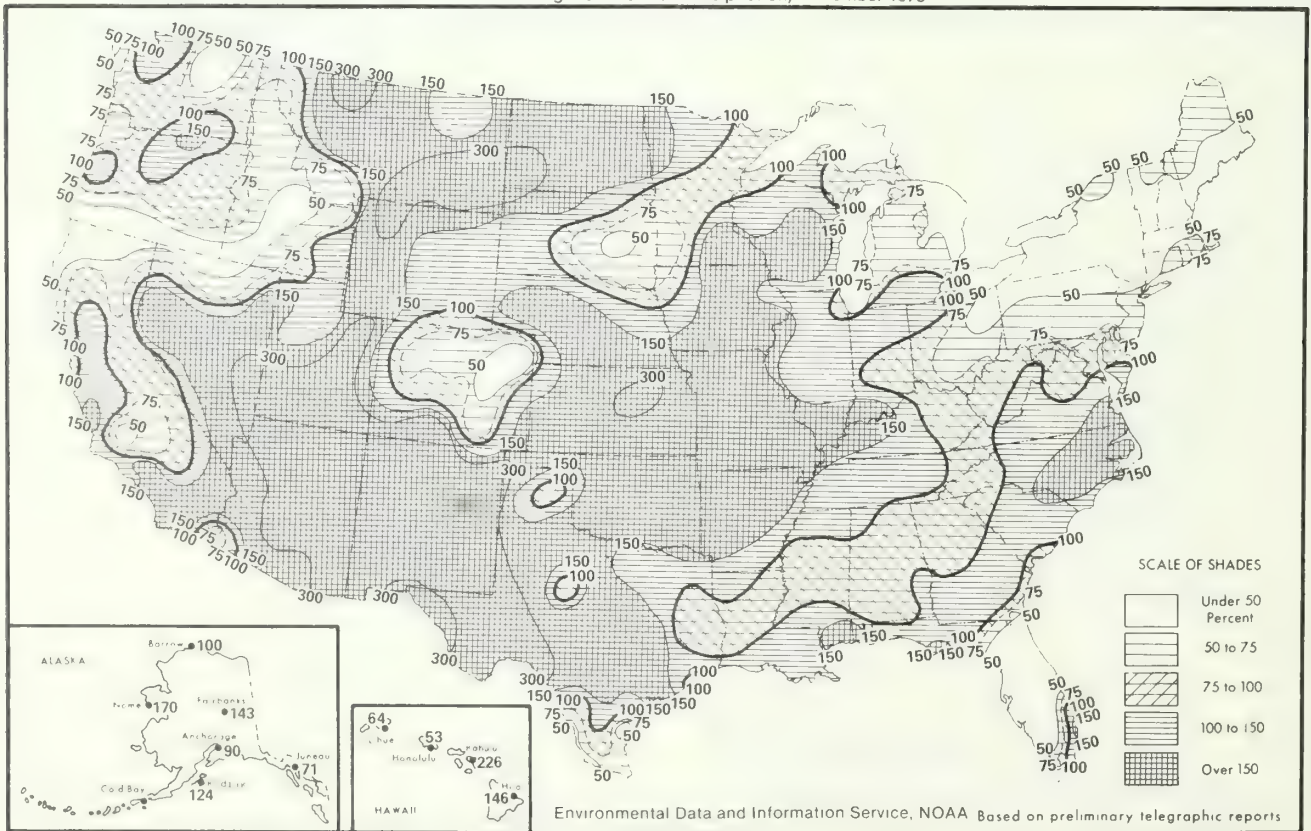
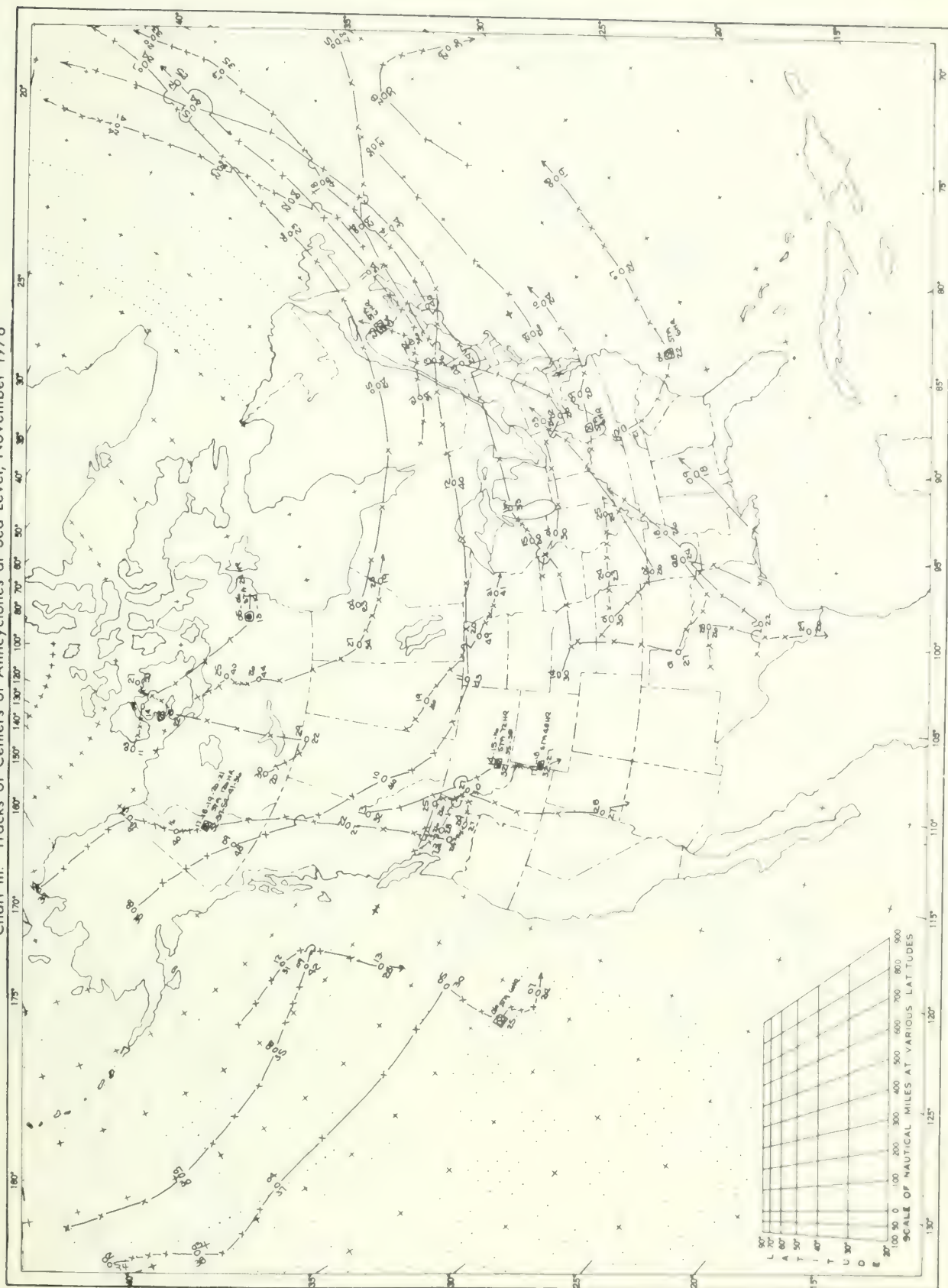


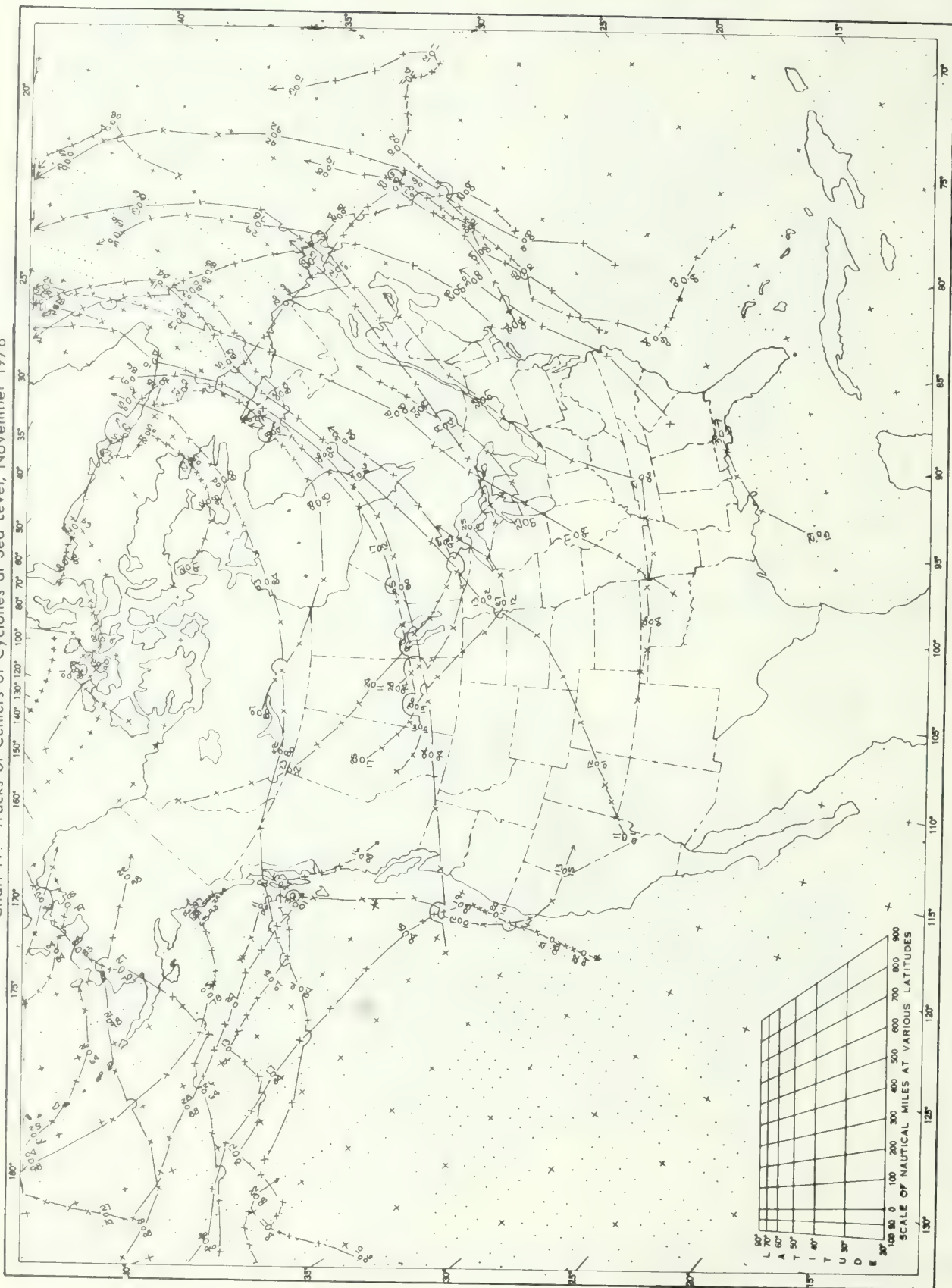


Chart III. Tracks of Centers of Anticyclones at Sea Level, November 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar. X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Tracks of Centers of Cyclones at Sea Level, November 1978



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.









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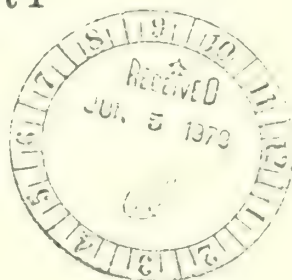
NUMBER 12

JUN 15 '80

FOR  
CURRENT RECORDS

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

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/ NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

DECEMBER 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Early in the month, an outbreak of very cold air moved southward down the West Coast and into northern Mexico. A hard freeze resulted in southern California. The freezing temperatures moved eastward into Arizona and northern Mexico, and then to the Rio Grande Valley where a moderate freeze occurred. The southernmost extent of the snowcover line in the Plains remained in southern Nebraska until late in the month when it moved southward into northern Texas.

Total precipitation for the month was less than 50% of normal in northern California, Oregon, Washington, and most of Idaho. Less than half the normal precipitation also fell in the Plains from Kansas southward. Excessive moisture fell in the Southwest and Rockies as well as the area from Arkansas through the Great Lakes and most of New England. Temperatures averaged below normal west of the Mississippi River, especially in the central Rockies and above normal in the East.

On the 1st, a surge of very cold air pushed into the northern Plains and drastically dropped temperatures. Snow accumulated from the northern Rockies to the western Great Lakes and southward to Nebraska.

Early in the first week (4th-10th), the jet stream oriented itself from Alaska southward into California and began funneling very cold air into the area. Freezing weather in California began on the 6th, and a hard freeze encompassed the state and moved into Arizona on the night and morning of the 8th and 9th. Moderate damage to crops was reported. The cold air moved eastward and caused damage to crops in Texas's Rio Grande Valley on the 8th and 9th. At the same time, temperatures dropped to single digits in the winter wheat area of the central Plains. All of the area south of Nebraska stood without snowcover. The cold air covered all of the country by week's end.

Moderate to heavy precipitation occurred from Louisiana to the mid-Atlantic States as the leading edge of the cold air encountered warm, moist air from the Gulf of Mexico.

The second week brought moderating temperatures to much of the Nation. Even areas that remained colder than normal were much warmer than the previous week. In contrast, however, the Southeast averaged 4 to 6° colder than normal after a week of warm weather. Little precipitation fell during the second week except for showers totaling nearly an inch in the Northwest, Southwest, in northern New England, and the southern tip of Florida.

The third week, (18th-24th), carried a continuation of showers in the Northwest and Southwest. A storm system from the Gulf of Mexico spread rain throughout the East. More than 2 inches fell from southern Alabama to eastern North Carolina helping to ameliorate the area's long-standing moisture deficit. Temperatures ranged warmer than normal throughout much of the country, except the West Coast and the Great Plateau where averages generally showed 3 to 6° colder than normal.

December ended with a week of wet weather from eastern Texas to New England and in southern Florida. Moderately cold air swept from the Gulf of Alaska to the northern central Plains and eastward during the early part of the week; as month's end approached, the trajectory of very cold air spread from western Canada into the Plateau and Rockies.

By the 31st, single-digit temperatures covered the winter wheat areas of western Kansas, Oklahoma, and the Texas Panhandle. This time, however, the cold air was preceded by snow which covered the area. The very cold air moved southward and eastward.





## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

JULY 1978

STATE	Temperature						Precipitation					
	Monthly extremes						Monthly extremes					
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In	Station	Least In		
Alabama	2 Stations	84	8	Hamilton 3 S	11	10	Scottsboro	9.02	Clayton	1.61		
Alaska	Palmer IAS	50	9	Allakaket	-57	22	Little Port Walter	29.14	Lonely	1		
Arizona	2 Stations	78	14	Fort Valley	-30	8	Pallwaide Ranger Station	11.74	Superior Natl Monument	4.44		
Arkansas	Crownsett 2 SSE	81	8	2 Stations	8	11	Wendouville	11.88	Albion, Washita	1.17		
California	4 Stations	80	13	2 Stations	-22	14	White Mountain 2	13.60	2 Stations	.00		
Colorado	Holly	69	20	Haybali	-50	8	Wolf Creek Pass 1 E	11.82	Duquett Ranch	13		
Connecticut	Danbury	88	4	Falls Village	-2	24	Groton	8.05	Falls Village	3.14		
Delaware	2 Stations	74	8	Wilmington WSO AP	13	24	Wilmington Water Reservoir	5.09	Brilliantville 1 NW	4.11		
Florida	Tamiami Trl 40 Mi Bend	95	8	Smith Creek	20	18	Fort Pierce	7.25	New West WSO AP	.43		
Georgia	Folkston 9 SW	86	8	Blairsville Exp. Station	-1	15	Ellijay	8.92	Blairsville FAA AP	.65		
Hawaii	Puukohola Heiau 98 1	90	18	Mauna Kea Obs 111.2	18	20	Puukohola Flats 78 4	17.76	Waikoloa 5th, Koloaka	.00		
Idaho	2 Stations	65	4	Stanley	-49	30	Powell	6.13	Bruneau	.25		
Illinois	Waterloo	88	21	Norleans	-17	10	Cairo WSO CI	11.31	Stoughton 1 SE	1.27		
Indiana	Saint Meinrad	65	20	Ogden Dunes	-8	10	Stoughton	7.82	Stoughtonville	1.89		
Iowa	Creston	52	18	Sioux City WSO AP	-19	8	Clinton 1	3.87	Shenandoah 1 NE	.08		
Kansas	2 Stations	75	20	Saint Francis	-15	8	Le Roy	1.94	Geneseo	7		
Kentucky	Barter	72	9	Covington WSO AP	8	10	Lambertown	17.64	Norfolk Railroad Dam	5.85		
Louisiana	New Roads 5 ESE	85	8	Plaquemine	14	1	Monroe NE	10.29	Wahkiakum Natl Park	1.44		
Maine	Portland WSO AP	53	6	Van Buren 2	-23	12	Sanford 2 NW	5.09	Ranger FAA AP	1.74		
Maryland	4 Stations	74	9	Oakland 1 SE	3	28	Mc Henry 2 NW	8.42	Crisfield Somers Cove	2.81		
Massachusetts	Hingham	63	4	Chester 2	-6	30	Ashfield	5.27	Great Barrington AP	2.89		
Michigan	2 Stations	55	4	2 Stations	-20	7	Attitash Point	0.68	Nottawa 3 SE	.80		
Minnesota	4 Stations	47	16	3 Stations	-38	31	Crato	9.170	Park Falls	.20		
Mississippi	84	8	3 Stations	12	26	Haystack 2 SW	12.71	Tylertown 2 WNW	3.10			
Missouri	Grovespring	76	20	Kirksville Radio KIRX	-5	10	Warrentonville	12.05	Ironton	.27		
Montana	3 Stations	50	11	Elk Park	-51	29	Lindbergh Lake	5.74	Trident	.08		
Nebraska	Benkelman	57	1	Agate 3 E	-31	8	Halvick 2 S	1.83	2 Stations	.05		
Nevada	Searchlight	66	16	Mountain City Ranger Stn.	-27	30	Mount Rose Bowl	2.44	Leonard Creek Ranch	.04		
New Hampshire	2 Stations	54	5	Mount Washington	-22	19	Mount Washington	6.82	Monroe 3 NW	1.04		
New Jersey	Chatsworth	74	8	Sussex 1 SE	3	30	Moorestown	6.42	Atlantic City WSO AP	3.52		
New Mexico	Carlsbad	76	20	Tres Piedras	-35	8	Ruidoso 2 NNE	8.88	3 Stations	.00		
New York	2 Stations	68	4	2 Stations	-20	29	Hooker 1 S	8.97	Salvo	1.38		
North Carolina	Wurfessboro	85	5	Grandfather Mountain	3	10	Humboldt	10.12	Edenton	1.87		
North Dakota	2 Stations	43	14	2 Stations	-36	31	Humboldt	1.44	Fullerton 1 ESE	.04		
Ohio	Cin Muni-Lunken Field	67	20	Dorset	-3	29	Ironton	10.61	Huyville 2 N	1.57		
Oklahoma	3 Stations	78	19	Boise City 2 E	-13	9	Smithville 1 W	5.36	Walters	7		
Oregon	Ruch	66	4	Sevea	-41	30	Government Camp	13.79	Christmas Valley	7		
Pennsylvania	Drexel University	69	4	Clement 4 NW	-17	29	Bradford 4 W Reservoir 1	7.13	Doswell 1 SE	2.10		
Puerto Rico	2 Stations	92	31	Adams Station	47	28	Pico del Este	9.21	Guano 4 S	.00		
Rhode Island	Providence WSO AP	62	4	2 Stations	10	29	Kingston	5.61	Woonsocket	4.30		
South Carolina	Ridgeland 5 NE	84	3	3 Stations	12	15	Caesars Head	8.20	Waterloo Dam	1.06		
South Dakota	Rapid City	55	14	Deerfield 4 NW	-42	31	Deadwood	2.05	3 Stations	7		
Tennessee	Katauga Dam	80	9	Centerville Water Plant	7	10	Bethpage	15.96	Knoxville 1 of Tenn	4.83		
Texas	3 Stations	92	23	Boothlex Corner	-10	9	Toldeo Bend Dam	6.70	6 Stations	.00		
Utah	2 Stations	59	13	Woodruff	-46	31	Silver Lake Brighton	6.31	Redover Auto	.05		
Vermont	Rutland	58	4	Enosburg Falls	-17	30	Mount Mansfield	6.67	South Hero	1.86		
Virginia	3 Stations	80	3	Monterey	5	11	Pennington Gap	7.27	Norfolk WSO AP	2.31		
Virgin Islands	4 Stations	87	29	Alex Hamilton Field FAA	65	21	Annaly	4.29	Estate Fort Milner	1.25		
Washington	Mc Nary Dam	60	25	Newport	-33	31	Rainier Paradise AB	16.85	Moose City 10 E	7		
West Virginia	Gary	76	9	Canaan Valley	-3	28	Danby 8 SE	11.57	Moorefield 2 SSE	2.51		
Wisconsin	2 Stations	47	15	Couderay 7 W	-35	31	Plymouth	3.29	Lynxville Dam 9	.42		
Wyoming	Burris	58	5	Darwin Ranch	-53	30	Snake River	5.80	2 Stations	.21		



## DECEMBER 1976

[illegible]





## METRIC UNITS

DEC 6 1970

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind			No. of days (sunrise to sunset)															
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 32° F or below	Min. 32° F or below	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, ice pellets	Resistant direction	Speed	Direction	Clear	Partly cloudy	Cloudy	Sky cover, (tenths)				
COLORADO																														
ALABAMA																														
DENVER	1673	1017.0	1018.6	0.9	-12.2	-13.3	-6.2	6.7	19	-19.1	8	0	31	-13.9	35	21	12	18	0	307	225	0.9	71	19.1	36	9	15	7	4.3	
COLORADO SPRINGS	1610	1024.4	1016.1	2.7	-10.9	-8.1	-13.9	4	-23.3	8	0	31	-23.3	59	21	10	13	7	0	361	152	0.7	19	12.6	46	9	10	11	5.2	
GRAND JUNCTION	1476	1024.6	1024.6	-3.7	-14.0	-6.9	-7.5	4.4	19	-24.6	8	0	30	-12.2	80	18	11	10	0	300	152	0.8	..	21.9	58	15	14	6	5.1	
PUEBLO	1428			3.1	-12.1	-4.4	-3.0	15.6	1	-30.6	8	0	30						292	178						14	6	4.8		
CONNECTICUT																														
BRIDGEPORT	2	1019.6	1014.2	6.1	-1.4	2.3	1.3	13.9	4	-9.4	29	0	21	-4.4	23	121	34	41	11	0	30	25	4.1	24	19.7	6.15	10	6.7	6.2	
HARTFORD	52	1004.5	1014.2	3.3	-6.3	-1.5	0.6	13.3	4	-12.8	17	0	30	-7.8	65	107	4	39	11	0	262	152	1.9	29	18.6	NW	18	9	0.7	
DELAWARE																														
WILMINGTON	23	1015.2	1018.3	8.3	-2.5	2.9	1.4	21.1	4	-10.6	29	0	24	-4.4	52	141	57	42	11	1	T	T	2.4	28	15.6	28	45	12	0	13
DIST. OF COLUMBIA																														
WASHINGTON DULLES	88	1006.8	1019.9	10.1	-3.2	3.4	2.3	22.8	4	-11.1	29	0	24	-3.9	32	91	3	28	11	0	T	T	1.5	27	14.8	31	17	10	11	5.4
WASHINGTON NATIONAL	3	1014.6	1019.0	10.9	1.4	6.2	3.2	23.3	8	-5.0	29	0	13	-2.2	58	102	24	24	9	0	T	T	1.9	26	17.9	NW	17	9	10	5.6
FLORIDA																														
APALACHICOLA	6	1020.3	1020.7	19.5	7.5	13.5	9.5	24.7	4	-1.1	10	0	3	2.4	80	34	28	20	6	1	0	0	1.3	7	10.7	26	24	8	15	7
DAYTONA BEACH	9	1014.6	1014.8	23.6	13.7	18.7	18.7	30.0	4	-6.7	10	0	3	13.4	74	124	77	46	7	1	0	0.6	8	10.3	27	34	4	27	10	6.1
FORT MYERS	5	1014.6	1014.8	26.2	15.6	20.9	2.7	32.2	8	-6.7	10	0	3	15.6	76	110	77	46	7	1	0	0.6	8	10.3	27	34	4	27	10	6.1
JACKSONVILLE	6	1019.6	1020.7	20.1	5.6	12.8	-0.2	28.3	8	-6.7	10	0	3	9.4	81															
KEY WEST	1	1017.3	1018.0	26.9	22.1	24.5	30.0	6	18.3	13	0	0	20.0	78	11	-24	3	9	0	0	0	3.0	6	14.3	2	17	7	15	7	76
ORLANDO	26	1018.9	1018.9	26.2	13.3	22.8	2.6	30.5	5	13.3	13	0	18.3	77	22	11	22	9	2	0	0	1.9	8	15.6	3	12	7	13	9	55
ORLANDO/HC CITY AFB	34	1018.9	1018.9	26.2	13.3	22.8	2.6	30.5	5	13.3	13	0	18.3	77	22	11	22	9	2	0	0	1.9	8	15.6	3	12	7	13	9	55
ORLANDO/HC CITY AFB	34	1018.9	1018.9	26.2	13.3	22.8	2.6	30.5	5	13.3	13	0	18.3	77	22	11	22	9	2	0	0	1.9	8	15.6	3	12	7	13	9	55
ORLANDO/HC CITY AFB	34	1018.9	1018.9	26.2	13.3	22.8	2.6	30.5	5	13.3	13	0	18.3	77	22	11	22	9	2	0	0	1.9	8	15.6	3	12	7	13	9	55
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9	19.0	17.2	18.1	17.2	27.2	3	-5.0	10	0	5	7.2	71	83	-36	6	7	1	0	0	0.6	2	12.5	19	44	16	11	4
TALLAHASSEE	17	1014.3	1020.9																											

CLIMATOLOGICAL DATA

S. J. PILLAI, J. H. L. JAYARAJA





State and Station	Elevation (ground)		Pressure		Temperature				Precipitation				Wind				No of days (sunrise to sunset)																	
	ft	m	Station	Sea level	Average maximum		Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No of days	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm or more	No of days	Snow, ice pellets	Maximum depth on ground	Residual speed	Residual direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy 8-10	Sky overcast, tenth	Possible sunshine	
					°C	°F																												
					°C	°F																												
INDIANA																																		
PORT WYNE	241	986.8	1017.8	3.5	-4.7	-0.6	1.3	1.4	2.0	15.0	10	-15.0	10	0	-5.6	73	92	34	33	11	0	18	2.8	25	14.8	N	21	5	4	22	7.4	43		
INDIANAPOLIS	241	986.2	1017.8	3.5	-4.7	-0.6	1.3	1.4	2.0	15.0	10	-15.0	10	0	-5.6	73	92	34	33	11	0	18	2.8	25	14.8	N	21	5	4	22	7.4	43		
SOUTH BEND	236	987.5	1016.5	3.6	-4.7	-0.6	1.3	1.4	2.0	15.0	10	-15.0	10	0	-5.6	80	113	50	30	15	1	160	2.5	5	13.0	NW	13	5	5	23	6.9	46		
INDIANA																																		
BURTON	211	982.1	1016.2	0.9	-7.8	-3.4	-1.0	8.9	18	-20.6	10	0	31	-0.3	69	47	7	1	368	254	1.8	28	12.5	31	20	7	4	20	7.2	35				
DES MOINES	322	977.6	1018.2	3.3	-4.7	-0.6	1.3	1.4	2.0	15.0	10	-15.0	10	0	-5.6	73	92	34	33	11	0	18	2.8	25	14.8	N	21	5	4	22	7.4	43		
DEBUIQUE	334	977.9	1019.2	3.4	-4.7	-0.6	1.3	1.4	2.0	15.0	10	-15.0	10	0	-5.6	73	92	34	33	11	0	18	2.8	25	14.8	N	21	5	4	22	7.4	43		
ST LOUIS CITY	265	985.1	1018.2	2.6	-11.3	-7.1	-2.4	3.9	18	-24.9	10	0	31	-12.2	74	20	1	432	362	1.6	30	15.2	NW	20	6	4	21	7.1	35					
WATERLOO	265	985.1	1018.2	2.6	-11.3	-7.1	-2.4	3.9	18	-24.9	10	0	31	-12.2	74	20	1	432	362	1.6	30	15.2	NW	20	6	4	21	7.1	35					
INDIANA																																		
WANKAS	448	983.8	1018.0	3.7	-7.9	-2.1	-1.2	13.3	28	-16.7	8	0	31	-9.4	63	5	-14	7	3	0	185	152	1.7	30	16.5	SW	17	14	13	5.1	71			
CONCORDIA	787	986.6	1018.2	3.3	-7.9	-2.1	-1.2	13.3	28	-16.7	8	0	31	-9.4	63	5	-14	7	3	0	185	152	1.7	30	16.5	SW	17	14	13	5.1	71			
GODDGE CITY	1114	986.6	1018.2	3.3	-7.9	-2.1	-1.2	13.3	28	-16.7	8	0	31	-9.4	63	5	-14	7	3	0	185	152	1.7	30	16.5	SW	17	14	13	5.1	71			
LOUISIANA																																		
LEXINGTON	294	982.7	1018.0	7.2	-2.7	2.2	1.3	17.2	23	-11.1	10	0	20	-1.1	76	253	161	96	12	3	18	2	5	2	2	10.3	SE	31	13	2	16	5.8	55	
LOUISVILLE	145	1000.7	1018.0	9.2	-0.3	4.4	2.4	18.9	20	-8.3	10	0	21	-1.1	71	194	109	71	12	2	1	1	1	2	12.5	SE	3	13	2	16	5.8	55		
LOUISIANA																																		
BATE CHARLES	20	1018.0	1020.4	17.5	4.9	11.2	-0.4	28.3	7	-5.0	10	0	10	6.7	75	40	-28	19	11	0	0	0	0	0	0	11	10.3	22	20	0	15	6.1		
LAKE CHARLES	1	1019.5	1019.5	18.1	5.8	11.9	-0.6	27.8	7	-4.4	10	0	6	6.7	75	40	-28	19	11	0	0	0	0	0	0	1.3	10	10.3	34	21	7	6	18	6.3
NEW ORLEANS	1	1018.6	1019.1	15.2	2.3	13.8	-0.6	28.9	3	0.0	24	0	3	8.3	72	112	-18	6	8	1	0	0	0	0	0	0.8	17	10.3	18	8	8	18	6.3	
SHREVEPORT	77	1009.8	1019.1	15.2	2.3	8.9	-0.7	28.0	19	-8.3	10	0	15	5.0	79	130	24	43	11	2	0	0	0	0	0	0.5	17	12.5	27	3	9	4	18	6.4
INDIANA																																		
MAINE																																		
CARLE	190	985.4	-4.1	-13.4	-8.7	0.1	3.9	0	-24.4	11	0	31	-24.4	11	0	31	77	11	15	17	0	1024	991	0	0	2.9	78	14.8	11	9	17	7.2	62	
PORTLAND	13	1010.5	1013.0	1.9	-8.5	-3.3	0.2	11.7	6	-20.0	11	0	30	-7.2	75	80	-23	28	9	0	460	178	2.2	28	14.8	NW	18	5	10	10	5.5	57		
MAINE																																		
BALTIMORE	45	1012.9	1018.7	10.2	-1.1	4.6	2.7	22.2	8	-7.8	11	0	21	-3.3	59	118	35	40	10	0	0	0	0	0	2.9	78	14.8	12	0	11	5.5	57		
MASSACHUSETTS																																		
BLUE HILL OBS R	192	1012.9	1014.0	3.7	-4.5	-0.4	0.5	18.6	4	-10.6	40	0	20	-4.4	65	96	-13	38	10	1	203	102	4.2	27	18.4	N	18	10	9	12	5.4	56		
BOSTON	901	975.3	1014.0	2.1	-5.7	-1.8	1.3	16.7	4	-11.7	19	0	29	-4.4	65	96	-9	33	13	1	353	142	3.6	28	19.7	NW	24	10	9	12	5.4	56		
Worcester																																		
MAINE																																		
MICHIGAN																																		
ALCANTARA	210	987.5	1013.6	-0.8	-8.4	-4.0	0.2	9.4	15	-20.6	28	0	31	-6.7	82	57	10	15	15	0	739	483	2.2	24	13.3	SW	12	1	7	23	8.5	21		
DETROIT	169	981.2	1016.1	2.7	-3.4	-0.4	0.9	11.1	3	-17.1	28	0	29	-5.0	78	71	14	20	16	0	168	76	3.0	24	13.0	SW	12	1	7	23	8.5	21		
DETROIT METRO	235	981.2	1016.1	2.7	-3.4	-0.4	0.9	11.1	3	-17.1	28	0	29	-5.0	78	71	14	20	16	0	168	76	3.0	24	13.0	SW	12	1	7	23	8.5	21		
FLINT	235	981.2	1016.1	2.7	-3.4	-0.4	0.9	11.1	3	-17.1	28	0	29	-5.0	78	71	14	20	16	0	168	76	3.0	24	13.0	SW	12	1	7	23	8.5	21		
GRAND RAPIDS	235	980.8	1016.1	0.3	-4.4	-3.1	-0.2	5.6	3	-17.2	28	0	31	-5.6	81	67	24	20	16	0	482	102	2.8	25	15.2	W	13	2	7	21	7.4	33		
HIGHWATER LAKE	350	970.9	1014.6	-1.7	-5.7	-3.7	0.4	5.0	3	-17.2	28	0	31	-6.1	77	84	29	20	16	0	482	102	2.8	25	15.2	W	13	2	7	21	7.4	33		
LANSING	256	984.1	1014.7	-0.6	-6.4	-2.9	-0.2	3.7	15	-20.6	28	0	31	-7.2	87	53	7	19	15	0	737	361	2.1	25	16.5	W	22	1	1	29	9.0	26		
MUSKEGON	204	981.0	1014.7	-3.2	-10.1	-6.6	-1.9	7.2	15	-20.6	28	0	31	-5.6	81	72	22	25	17	0	373	127	2.6	25	16.5	W	22	1	1	29	9.0	26		
MUSKEGON H	204	981.0	1014.7	-3.2	-10.1	-6.6	-1.9	7.2	15	-20.6	28	0	31	-5.6	81	72	22	25	17	0	373	127	2.6	25	16.5	W	22	1	1	29	9.0	26		
MUSKEGON H	204	981.0	1014.7	-3.2	-10.1	-6.6	-1.9	7.2	15	-20.6	28	0	31	-5.6	81	72	22	25	17	0	373	127	2.6	25	16.5	W	22	1	1	29	9.0	26		
MUSKEGON H	204	981.0	1014.7	-3.2	-10.1	-6.6	-1.9	7.2	15	-20.6	28	0	31	-5.6	81	72	22	25	17	0	373	127	2.6	25	16.5	W	22	1	1	29	9.0	26		
SAULT STE MARIE	121	984.0	1013.7	-0.5	-5.7	-3.1	-1.2	3.9	18	-25.0	10	0	31	-6.1	80	71	6	15	14	0	615	258	2.3	26	13.0	NW	13	8	5	20	9.2	25		
SAULT STE MARIE	121	984.0	1013.7	-0.5	-5.7	-3.1	-1.2	3.9	18	-25.0	10	0	31	-6.1	80	71	6	15	14	0	615	258	2.3	26	13.0	NW	13	8	5	20	9.2	25		
MINNESOTA																																		
DULUTH	435	961.1	1013.1	-7.4	-17.0	-12.2	-2.4	1.7	15	-26.9	10	0	31	-16.7	62	30	-4	11	8	0	928	406	2.2	27	12.8	NE	18	8	0	17	6.0	47		
INTERNATIONAL FALLS	350	969.5	1013.1	-11.0	-23.8	-17.4	-4.0	1.7	15	-26.9	10	0	31	-16.7	62	30	-4	11	8	0	928	406	2.2	27	12.8	NE	18	8	0	17	6.0	47		
INTERNATIONAL FALLS	350	969.5	1013.1	-11.0	-23.8	-17.4	-4.0	1.7	15	-26.9	10	0	31	-16.7	62	30	-4	11	8	0	928	406	2.2	27	12.8	NE	18	8	0	17	6.0	47		
INTERNATIONAL FALLS	350	969.5	1013.1	-11.0	-23.8	-17.4	-4.0	1.7	15	-26.9	10	0	31	-16.7	62	30	-4	11	8	0	928	406	2.2	27	12.8	NE	18	8	0	17	6.0	47		
INTERNATIONAL FALLS	350	969.5	1013.1	-11.0	-23.8	-17.4	-4.0	1.7	15	-26.9	10	0	31	-16.7	62	30	-4	11	8	0	92													



# CLIMATOLOGICAL DATA

METRIC UNITS

OCTOBER 1978

State and Station	Elevation (ground)	Pressure		Temperature					Precipitation					Wind			No. of days (sunrise to sunset)															
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Temperature		No. of days	Max 32° F or above	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	No. of days	Snow, ice pellets	Maximum depth on ground	Residual speed	Residual direction	Wind		No. of days (sunrise to sunset)							
								Highest	Lowest														Speed	Direction		Date						
MISSISSIPPI																																
Meridian	88	1006.8	1021.0	14.0	1.3	8.7	-0.2	27.6	7*	-7.8	10	0	19	3.3	73	154	13	51	11	2	0	0	0.5	14	10.3	24	3	9	7	15	6.3	
MISSOURI																																
COLUMBIA REGIONAL	270	984.6	1018.2	6.6	-4.2	1.2	0.8	17.8	19	-12.2	10*	0	26	-5.6	66	64	19	23	8	1	127	51	1.3	25	13.4	14	10	12	5	16	6.0	4.9
KANSAS CITY	309	980.4	1018.3	3.9	-5.4	-0.6	-0.2	15.0	19	-15.0	9	0	26	-7.2	65	27	-17	20	2	0	297	479	1.3	26	13.0	54	14	11	8	14	5.5	4.5
ST. JOSEPH	247	988.0	1018.8	0.9	-6.6	-1.3	-0.2	12.2	1	-13.9	9	0	29	-2.8	76	46	-19	13	4	0	216	203	1.3	26	13.0	54	14	11	8	14	5.5	4.5
SPRINGFIELD	386	971.9	1018.5	7.8	-4.8	1.5	-0.7	22.2	19	-12.8	10	0	27	-4.4	70	93	31	13	10	3	36	76	1.7	25	15.2	14	10	12	3	14	5.7	5.8
MONTANA																																
BILLINGS	1087	889.3	1018.7	-6.8	-12.9	-0.8	-5.9	8.4	24	-30.6	31	0	31	-13.9	68	44	27	25	9	0	564	610	4.0	25	24.1	14	4	6	10	15	6.5	31
GLASSBORO	1866	931.9	1018.1	-0.7	-18.6	-2.7	-7.4	6.6	11	-31.9	30	0	31	-15.6	79	11	4	12	0	0	292	229	4.6	23	19.7	54	14	3	18	26	7.4	39
HAVRE	789	922.1	1020.2	-3.2	-13.1	-8.1	-5.1	7.2	3	-35.0	30	0	31	-15.0	63	27	0	12	6	0	371	229	4.6	23	19.7	54	14	3	18	26	7.4	46
HELENA	1167	860.1	1021.6	-4.0	-14.7	-9.3	-4.5	9.4	4	-35.0	30	0	31	-15.0	63	22	-14	6	14	0	371	229	4.6	23	19.7	54	14	3	18	26	7.4	41
KALISPELL	904	913.0	1022.4	-4.4	-15.4	-9.9	-3.3	3.9	24*	-36.1	31	0	31	-13.9	68	22	-14	6	14	0	371	229	4.6	23	19.7	54	14	3	18	26	7.4	41
MILES CITY	801	921.1	1018.5	-5.7	-10.7	-10.7	-5.1	3.9	14*	-34.4	31	0	31	-13.9	70	16	4	16	0	0	170	228	2.8	28	17.9	14	2	6	21	8.2	38	
MISSOULA	972	904.2	1018.1	-5.0	-12.9	-8.9	-4.9	3.9	24*	-31.1	31	0	31	-12.8	73	25	-4	16	0	348	229	4.6	32	17.9	14	2	6	21	8.2	38		
NEBRASKA																																
GRAND ISLAND	561	950.2	1019.4	-2.6	-12.5	-7.6	-4.8	6.7	12	-25.0	9	0	31	-11.1	75	16	12	6	1	0	206	178	2.4	35	23	15	3	13	5	12	5.7	5
LINCOLN	359	874.9	1018.4	-0.5	-10.3	-5.2	-2.8	7.2	18*	-20.9	9	0	31	-10.9	72	10	-10	6	3	0	76	25	2.1	32	16.5	14	4	9	10	12	5.7	5
NORTH PLATTE	471	960.7	1019.9	-3.1	-13.4	-8.2	-5.9	7.2	12	-23.9	8	0	31	-12.2	70	23	7	17	0	0	384	256	2.7	31	19.2	14	4	9	10	12	5.7	62
OMAHA	296	917.4	1019.9	-1.6	-10.3	-5.6	-3.1	8.6	12	-27.2	8	0	31	-13.3	71	23	13	20	7	0	262	229	2.1	33	13.0	14	25	9	10	12	5.7	62
OMAHA (NORTH) WFO	399	917.4	1019.9	-1.6	-10.3	-5.6	-3.1	8.6	12	-27.2	8	0	31	-13.3	71	23	13	20	7	0	262	229	2.1	33	13.0	14	25	9	10	12	5.7	62
SCOTTSDALE	1204	877.8	1019.0	-1.2	-13.4	-7.3	-4.8	7.8	24*	-31.1	31	0	31	-12.2	67	13	26	10	15	0	443	256	3.0	24	17.9	14	7	16	8	6	4	9
VALENTINE	789	923.1	1019.0	-1.7	-13.4	-7.3	-4.8	7.8	24*	-31.1	31	0	31	-12.2	67	13	26	10	15	0	443	256	3.0	24	17.9	14	7	16	8	6	4	9
NEVADA																																
ELKO	1599	869.9	1022.2	2.2	-11.5	-6.7	-1.3	10.0	4	-26.4	30	0	31	-16.7	49	18	-15	6	4	0	51	51	0.5	27	17.6	20	31*	11	7	13	5.4	74
FLY	1906	807.7	1020.5	2.5	-14.0	-6.2	-3.0	10.0	24*	-26.7	30	0	31	-16.7	49	18	-15	6	4	0	51	51	0.5	27	17.6	20	31*	11	7	13	5.4	74
LAS VEGAS	659	941.5	1020.1	12.2	-0.1	6.1	-1.3	17.2	25*	-5.5	9	0	20	-9.6	51	20	20	2	3	0	231	170	1.6	26	16.5	14	27	11	10	5.7	81	
RENO	1342	888.3	1023.1	3.1	-10.9	-5.9	-1.1	16.1	4	-21.7	20	0	30	-9.4	73	21	-7	19	3	0	131	203	0.1	12	13.5	14	36	11	5	7	7.9	70
WHEAT RICA	1311	871.3	1022.9	4.6	-11.3	-6.3	-2.4	14.4	4	-22.8	30	0	30	-9.4	65	10	-14	4	0	107	51	0.4	17	14.8	14	36	11	5	7	7.9	70	
NEW HAMPSHIRE																																
CONCORD	104	1001.0	1014.0	0.8	-11.2	-5.2	-1.2	8.9	6	-21.1	30	0	31	-10.0	69	74	-9	24	10	0	411	205	2.1	28	15.2	14	7	8	10	6.5	45	
MT. WASHINGTON OBS	1909			-9.2	-18.4	-13.8	-1.0	9.3	4	-30.0	19	0	31			173	-9	54	24	0	1105	102		6	25	1	2	28	6.2	15		
NEW JERSEY																																
ATLANTIC CITY	20	1014.9	1017.5	9.3	-2.8	3.3	1.6	21.1	9*	-10.0	30*	0	23	-2.8	67	86	-12	26	12	0	0	0	0	0	0	10	8	13	5.6	51		
NEWARK	2	1015.9	1017.1	7.4	-0.7	3.4	2.0	21.4	9*	-7.8	29	0	19	-3.3	64	144	61	62	12	0	13	0	0	0	0	10	8	13	6.0	55		
TRENTON	17			7.6	-0.6	3.4	1.8	20.6	4	-7.8	29	0	19	-3.3	64	144	61	62	12	0	13	0	0	0	0	10	8	13	6.0	55		
NEW MEXICO																																
ALBUQUERQUE	1619	837.5	1018.1	7.6	-5.3	1.3	-1.1	17.2	1	-14.4	0	0	27	-7.2	59	19	6	10	5	0	25	25	1.6	35	23.2	14	6	17	9	11	4.7	64
CARTAGENA	1515			8.3	-8.3	-1.4	-1.1	22.8	5*	-22.2	0	0	26	-5.0	62	11	-1	0	0	0	196	152	0.4	28	15.6	14	20	13	8	13	4.8	76
ROSEMBO	1112	889.9	1017.2	10.4	-4.6	2.9	-1.2	22.8	5*	-22.2	0	0	26	-5.0	62	11	-1	0	0	0	196	152	0.4	28	15.6	14	20	13	8	13	4.8	76
NEW YORK																																
ALBANY	84	1008.1	1018.0	2.0	-8.3	-1.9	1.6	11.7	0*	-15.6	29	0	29	-7.2	69	78	4	14	10	1	305	305	2.2	26	17.4	14	17	4	7	22	7.1	38
BUFFALO	215	889.2	1018.4	2.6	-8.7	-0.9	1.4	13.3	4	-15.7	29	0	29	-6.7	80	80	16	33	18	1	620	256	3.0	25	16.3	14	20	1	10	10	8.3	24
NEW YORK	40	1013.5	1018.7	7.3	0.3	3.3	1.9	19.4	4	-7.2	29*	0	15	-4.4	59	83	33	49	22	0	273	127	3.7	23	17.9	14	20	1	10	10	8.3	24
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4	-6.1	29	0	13	-3.3	62	134	43	19	22	0	0	0	0	0	0	10	8	13	6.0	55		
NEW YORK (KEMENY)	40	1016.3	1016.7	7.7	0.4	4.1	2.4	18.3	4																							





# CLIMATOLOGICAL DATA

METRIC UNITS

DECEMBER 1978

State and Station	Elevation (ground)	Pressure		Temperature					Precipitation				Wind			No of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours		No. of days	Snow, (ice pellets)	Fastest mile (1.0 kilometers)	Direction	Speed	Residual direction	Residual speed	Clear, 0-3	Partly cloudy, 4-7	Cloudy 8-10	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
											Max 32.2 °C or above	Min. 0 °C or lower				Average dew point	mm													mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm





# CLIMATOLOGICAL DATA

METRIC UNITS

DECEMBER 1978

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind			No. of days (sunrise to sunset)																	
		Station @	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2° or above	Min 0° or lower	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days with thunderstorms	No. of days with ice pellets	Resultant speed	Resultant direction	Fastest mile (1.0 kilometers)		Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)						
																							Speed	Direction										
RHODE ISLAND PROVIDENCE	16	1012.9	1013.3	5.6	-4.0	0.8	1.1	18.7	4	-10.0	12*	0	27	-5.0	68	132	27	43	10	0	61	25	3.0	26	14.3	30	18	11	7	13	5.7	67		
SOUTH CAROLINA																																		
CHARLESTON	12	1019.6	1021.4	18.4	4.6	11.5	1.9	27.8	8	-4.4	15	0	10	5.0	69	105	24	46	6	1	0	0	0.8	30	13.4	32	17	9	5	17	6.2	65		
CHARLESTON U	3	1017.5	1020.7	17.3	8.4	12.9	2.2	28.7	8	-2.2	15	0	10	5.0	69	77	2	47	7	0	0	0	0	0	26	10.3	22	8	10	5	16	5.7	77	
COLUMBIA	65	1017.5	1020.7	17.3	2.1	9.7	1.3	28.2	20	-7.2	15	0	15	1.1	59	46	-40	32	11	0	0	0	0.6	26	10.3	22	8	10	5	16	5.7	77		
GREENVILLE-SPRINGBAG	292	1015.1	1020.6	12.3	0.5	6.4	0.3	22.2	20	-5.6	14	0	15	-0.6	65	86	-18	33	11	0	0	0	0.7	30	13.4	54	21*	12	5	14	5.7	55		
SOUTH DAKOTA																																		
AERDEN	999	1008.6	1017.6	-6.3	-17.3	-11.8	-3.2	3.9	12	-30.0	31	0	31	-13.9	69	3	-9	2	3	0	53	127	2.2	26	14.8	NW	12	10	7	14	5.4	58		
HURON	390	1008.6	1017.6	-3.9	-15.6	-9.7	-2.6	4.7	15	-30.0	31	0	31	-13.9	69	7	-7	3	0	150	102	2.2	26	14.8	NW	12	10	7	14	5.4	58			
RAPID CITY	764	1008.6	1017.6	-2.6	-14.1	-8.3	-3.2	7.8	15	-23.0	31	0	31	-13.9	68	6	-6	3	0	102	76	2.8	24	13.0	NW	21	7	8	10	6.1	70			
SIOUX FALLS	432	1008.4	1018.3	-4.3	-15.0	-9.7	-3.0	4.4	15	-25.0	4	0	31	-14.4	68	13	-6	8	0	241	178	2.0	24	13.0	NW	31	12	8	9	14	6.4	64		
TENNESSEE																																		
BRIISTOL	459	1004.1	1020.7	10.8	-2.6	4.2	1.0	25.0	8	-10.0	15	0	23	-2.2	68	144	34	44	12	0	1	0	0.6	26	9.8	28	21	11	6	14	5.7	72		
CHATTANOOGA	503	1004.1	1020.7	10.8	-2.6	4.2	1.0	25.0	8	-10.0	15	0	23	-2.2	68	144	34	44	12	0	1	0	0.6	26	9.8	28	21	11	6	14	5.7	72		
KNOXVILLE	499	1004.4	1020.2	12.1	-0.1	6.0	0.7	23.9	9	-7.2	14	0	17	-0.2	72	150	37	56	11	0	0	0	0.8	29	11.2	23	20	11	7	13	5.4	55		
MEMPHIS	180	1004.4	1020.2	12.1	-0.1	6.0	0.7	23.9	9	-7.2	14	0	17	-0.2	72	150	37	56	11	0	0	0	0.8	29	11.2	23	20	11	7	13	5.4	55		
NASHVILLE	180	997.6	1020.0	10.6	-0.4	5.8	1.1	21.7	7	-7.4	10	0	20	0.0	66	346	33	138	12	3	1	0	1.7	21	15.2	28	7	13	3	15	5.1	48		
OAK RIDGE R	476			12.0	-2.1	4.3	0.3	22.2	8	-8.9	10	0	23	0	66	369	33	130	12	3	1	0	1.7	21	15.2	28	7	13	3	15	5.1	48		
TEXAS																																		
ABILENE	544	1014.3	1014.3	12.8	-0.3	0.3	-1.7	26.7	19	-8.9	9	0	16	-3.9	54	7	-19	7	2	0	23	25	1.2	25	17.0	N	20	10	8	13	5.8	72		
AMARILLO	1396	1014.3	1014.3	12.8	-0.3	0.3	-1.7	26.7	19	-8.9	9	0	16	-3.9	54	7	-19	7	2	0	23	25	1.2	25	17.0	N	20	10	8	13	5.8	72		
AUSTIN	192	996.3	1015.9	15.6	4.1	9.8	1.1	26.1	10	-7.2	10	0	7	2.8	61	72	16	63	4	1	64	51	1.8	34	14.1	NW	8	7	16	6.5	42			
BROWNSVILLE	6	1016.5	1017.4	22.9	11.7	17.2	0.1	30.0	3*	-0.6	10*	0	2	12.8	79	47	16	38	7	0	0	0	0	0	20	14.3	5	2	4	20	7.6	32		
CORPUS CHRISTI	12	1016.5	1017.4	22.9	11.7	17.2	0.1	30.0	3*	-0.6	10*	0	2	12.8	79	47	16	38	7	0	0	0	0	0	0	1.3	5	2	4	20	7.6	32		
DALLAS - FORT WORTH	168	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	20	25	1.1	26	11.2	19	4*	17	7	22	7.2	36		
DEL RIO	313	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	20	25	1.1	26	11.2	19	4*	17	7	22	7.2	36		
EL PASO	1194	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	20	25	1.1	26	11.2	19	4*	17	7	22	7.2	36		
EL PASO	1194	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	20	25	1.1	26	11.2	19	4*	17	7	22	7.2	36		
GALVESTON	17.4	1017.4	1017.4	10.7	14.1	0.2	29.9	7*	-0.6	10*	0	0	34	-5.9	10	3	-59	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79
HOUSTON	29	1015.2	1019.0	18.2	5.1	11.6	-0.9	28.3	7	-6.7	10	0	8	7.2	60	66	-37	22	12	1	0	0	0	0.8	7	11.2	29	31	5	8	18	7.1	39	
HOUSTON INTERCON	29	1015.2	1019.0	18.2	5.1	11.6	-0.9	28.3	7	-6.7	10	0	8	7.2	60	66	-37	22	12	1	0	0	0	0.8	7	11.2	29	31	5	8	18	7.1	39	
LUBBOCK	492	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	43	51	1.2	29	13.0	79	20	15	6	15	4.4	59		
MIDLAND	903	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	78	25	0.7	29	13.0	79	20	15	6	15	4.4	59		
PORT ARTHUR	5	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	78	25	0.7	29	13.0	79	20	15	6	15	4.4	59		
SAN ANGELO	580	1016.5	1014.2	20.9	4.2	13.1	0.0	31.7	20	-6.1	10	0	2	12.8	79	47	16	11	0	0	78	25	0.7	29	13.0	79	20	15	6	15	4.4	59		
SAN ANGELO	580	993.2	1018.3	17.0	-0.1	6.8	-2.3	28.6	19	-10.0	19	0	17	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0	4.9	10.9	-0.5	27.8	7	-7.8	10	0	7	-1.7	52	4	-11	4	10	0	25	0	0	0	0	0	0	0	0	0	0	0	0	31
SAN ANTONIO	245	1004.6	1018.3	17.0																														



# CLIMATOLOGICAL DATA

METRIC UNITS

DECEMBER 1978

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind			No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)							
		Station ID	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm or more	No. of days	Snow, ice pellets		Resultant speed	Resultant direction	Speed		Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10		
											Max 32.2 °C or above	Min 0 °C or lower								Maximum depth on ground	Returnant direction											
WASHINGTON	1221	1005.4	1022.2	-5.9	0.1	-3.1	-1.7	11.7	-10.6	31	0	13	-2.2	71	35	-1.6	10	15	0	5	1	1.7	17	13.0	SW	23*	7	3	19	7.2	20	
SEATTLE-TACOMA	718	934.3	1021.8	-3.2	-1.3	-7.2	-5.6	3.3	-30.0	31	0	31	-8.0	85	27	-3.4	10	11	0	376	305	2.0	71	15.6	SW	22*	5	9	17	7.5	26	
SPokane	1206	880.1	1021.8	-3.3	-8.2	-5.7	-2.4	3.3	-23.3	31	0	31	-8.0	85	27	-3.4	10	11	0	1079	1270	2.0	71	15.6	SW	22*	5	9	17	7.5	26	
STAMPANE PASS R	289	880.1	1021.8	-3.3	-8.2	-5.7	-2.4	3.3	-23.3	31	0	31	-8.0	85	27	-3.4	10	11	0	1079	1270	2.0	71	15.6	SW	22*	5	9	17	7.5	26	
MALLA HALLA U	321	883.4	1023.3	3.4	-8.4	-2.5	-2.1	13.9	-22.6	30	0	31	-8.3	67	4	-2.6	4	1	0	239	162	1.7	29	13.4	SW	14	8	10	13	7.5	31	
YAFIMA	321	883.4	1023.3	3.4	-8.4	-2.5	-2.1	13.9	-22.6	30	0	31	-8.3	67	4	-2.6	4	1	0	239	162	1.7	29	13.4	SW	14	8	10	13	7.5	31	
WEST INDIAN	4	1014.6	1017.0	29.8	23.1	26.4	1.6	30.6	28*	21+1	30	0	21.7	78	66	-5.3	18	16	2	0	0	2.5	8	13.4	SE	2	7	19	5	5.2	61	
SAN JUAN P.R.	763	928.5	1019.6	7.5	-2.4	2.7	2.4	21.7	8	-14.8	28	0	20	-3.3	69	149	0.5	36	14	1	97	51	2.1	23	13.4	30	25	8	9	14	6.4	64
BICKLEY	286	984.3	1019.6	7.6	-1.8	3.9	1.6	21.1	8	-11.1	28	0	21	-3.3	64	204	12.3	43	14	0	138	25	1.5	24	10.3	24	21	10	6	15	6.0	60
ELPHINSTON	594	946.4	1019.3	7.7	-1.6	3.6	1.4	17.8	20	-10.0	11	0	22	-2.6	65	221	18.4	44	15	2	135	71	1.5	24	8.9	27	21	11	5	15	6.2	62
HUNTINGTON	232	988.5	1019.3	7.7	-1.6	3.6	1.4	17.8	20	-10.0	11	0	22	-2.6	65	221	18.4	44	15	2	135	71	1.5	24	8.9	27	21	11	5	15	6.2	62
PARKERSBURG U	187	77.3	1019.3	7.7	-1.6	3.6	1.4	17.8	20	-10.0	11	0	22	-2.6	65	221	18.4	44	15	2	135	71	1.5	24	8.9	27	21	11	5	15	6.2	62
ALSTONSTON	208	988.5	1019.3	-3.3	-11.9	-7.6	-1.4	3.9	15	-23.9	10	0	31	-10.0	83	33	1	10	9	0	381	305	2.3	20	12.5	SW	4	8	3	10	6.4	37
GREEN RAY	198	997.2	1017.7	-2.2	-11.2	-6.7	-1.1	6.7	15	-23.3	10	0	31	-9.4	77	24	-1	14	0	381	305	2.3	20	12.5	SW	4	8	3	10	6.4	37	
LA CRUSSE	205	997.2	1016.5	-1.9	-10.0	-5.8	-0.3	6.7	15	-23.3	10	0	31	-9.4	77	24	-1	14	0	381	305	2.3	20	12.5	SW	4	8	3	10	6.4	37	
MADISON	205	997.2	1016.5	-1.9	-10.0	-5.8	-0.3	6.7	15	-23.3	10	0	31	-9.4	77	24	-1	14	0	381	305	2.3	20	12.5	SW	4	8	3	10	6.4	37	
MILWAUKEE	205	997.2	1016.5	-1.9	-10.0	-5.8	-0.3	6.7	15	-23.3	10	0	31	-9.4	77	24	-1	14	0	381	305	2.3	20	12.5	SW	4	8	3	10	6.4	37	
WYOMING	1527	838.1	1019.6	-4.6	-15.4	-10.4	-7.2	5.6	16	-36.7	31	0	30	-14.4	68	30	18	11	12	0	653	229	5.2	23	20.6	25	4	8	3	26	6.6	60
CASPER	1867	808.4	1016.7	-5.5	-12.2	-9.1	-4.5	8.3	17	-26.7	31	0	31	-15.6	92	14	4	9	0	447	178	5.1	29	20.8	SW	3	10	10	12	5.5	60	
CHEYENNE	1908	825.0	1021.7	-5.5	-19.0	-12.7	-7.7	10.6	4	-35.6	31	0	31	-17.2	72	31	20	12	7	0	645	381	0.4	22	20.6	SW	4	11	8	18	5.3	41
LAUDER	1208	876.4	1020.2	-6.2	-17.5	-10.8	-7.2	8.9	11	-33.9	31	0	31	-15.0	70	24	7	11	10	0	465	406	2.5	29	15.2	SW	4	3	8	18	7.1	45
SHERIDAN	1208	876.4	1020.2	-6.2	-17.5	-10.8	-7.2	8.9	11	-33.9	31	0	31	-15.0	70	24	7	11	10	0	465	406	2.5	29	15.2	SW	4	3	8	18	7.1	45





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# MONTHLY AND SEASONAL COOLING DEGREE DAYS

(Base 65°F)

1978

State and Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for Season	Normals Jan.-Dec.
ALABAMA														
BIRMINGHAM U	0	0	0	64	151	370	515	403	361	34	12	0	1975	1975
BIRMINGHAM	0	0	0	34	143	374	477	427	298	10	8	0	1773	1835
HUNTSVILLE	0	0	0	127	329	496	506	373	307	177	94	34	2884	2977
MOBILE	1	0	0	78	239	458	547	498	430	87	24	20	2365	2293
MONTGOMERY														
ALASKA														
ANCHORAGE	0	0	0	0	0	0	8	7	0	0	0	0	8	0
ANNETTE	0	0	0	0	0	1	5	0	0	0	0	0	6	14
BARROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BARTER ISLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BETHEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BETTLES	0	0	0	0	0	0	21	0	0	0	0	0	21	17
BIG DELTA	0	0	0	0	0	0	39	4	0	0	0	0	43	34
COLO BAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FAIRBANKS	0	0	0	0	0	0	27	10	0	0	0	0	37	52
GULIKANA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOMER	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KING SALMON	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KODIAK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KOTZEBUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MC GRATH	0	0	0	0	0	0	0	2	0	0	0	0	2	14
NOME	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ST. PAUL ISLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TALKEENA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNALASKA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VALOFZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YAKUTAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIZONA														
FLAGSTAFF	0	0	0	0	0	25	87	38	2	0	0	0	152	140
PHOENIX	3	1	92	158	422	787	928	928	644	431	49	0	4743	3525
TUCSON	0	0	0	0	75	283	630	721	488	293	24	0	3184	2524
WINSTON	0	0	0	0	0	2	39	374	158	15	0	0	1912	1435
YUMA	0	0	109	136	443	783	918	837	630	490	70	0	4421	4195
ARKANSAS														
FORT SMITH	0	0	0	60	173	357	637	567	419	46	0	0	2200	2222
LITTLE ROCK	0	0	0	9	104	253	424	499	357	31	10	0	2358	2255
NO. LITTLE ROCK	0	0	0	91	199	390	576	513	323	41	26	0	2164	1951
CALIFORNIA														
BAKERSFIELD	0	0	14	23	273	451	655	628	358	332	11	0	2748	2178
BISHOP	0	0	0	0	25	107	353	309	64	25	0	0	943	1033
BLUE CANYON	0	0	0	0	1	23	139	163	21	27	0	0	374	302
BUREKA U	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRESDO	0	0	3	6	179	342	546	516	250	187	0	0	2029	1971
LONG BEACH	0	0	65	2	138	192	240	254	284	155	11	0	1711	1885
LOS ANGELES U	0	0	32	0	70	86	92	159	266	115	4	0	1827	1615
LOS ANGELES U	0	0	52	2	145	212	269	277	336	177	17	0	1497	1439
MT. SHASTA R	0	0	0	0	0	13	108	131	0	0	0	0	257	254
OAKLAND	0	0	0	0	45	3	15	39	89	28	0	0	221	129
RED BLUFF	0	0	1	15	109	335	596	554	270	229	6	0	2200	1804
SACRAMENTO	0	0	0	0	98	157	313	315	157	87	0	0	1132	1159
SAN DIEGO R	0	0	0	0	25	90	286	234	132	112	1	0	1132	1159
SAN DIEGO	1	7	38	4	115	194	213	251	276	160	11	0	1276	722
SAN FRANCISCO	0	0	0	0	24	0	7	18	67	33	0	0	144	105
SAN FRANCISCO U	0	0	0	0	30	0	0	0	0	0	0	0	180	33
SANTA MARIA	0	0	0	0	12	0	0	25	59	2	0	0	98	84
STOCKTON	0	0	0	0	142	250	425	426	218	142	0	0	1804	1259
COLORADO														
ALAMOSA	0	0	0	0	0	8	39	0	0	0	0	0	47	88
COLORADO SPRINGS	0	0	0	0	4	143	255	127	59	1	0	0	589	401
DENVER	0	0	0	0	12	152	305	171	103	2	0	0	748	625
GRAND JUNCTION	0	0	0	0	25	258	420	308	123	1	0	0	1135	1140
PUEBLO	0	0	0	0	27	217	411	255	119	2	0	0	1081	981
CONNECTICUT														
BRIDGEPORT	0	0	0	0	19	93	264	318	76	1	0	0	771	735
HARTFORD	0	0	0	0	71	159	228	173	26	0	0	0	657	584
DELAWARE														
WILMINGTON	0	0	0	0	48	188	273	383	117	7	0	0	1016	992
DIST. OF COLUMBIA														
WASHINGTON DULLES	0	0	0	0	84	219	298	385	183	10	0	0	1179	940
WASHINGTON NATIONAL	0	0	0	0	117	358	434	514	274	25	0	0	1732	1415
FLORIDA														
APPALACHICOLA U	0	0	3	83	283	438	496	498	428	145	59	28	2403	2003
DAYTONA BEACH	14	0	36	196	388	499	553	543	477	295	192	94	3309	2409
FORT MYERS	39	3	95	242	429	508	580	588	530	412	284	170	1980	1711
JACKSONVILLE	4	0	31	131	311	441	527	497	399	140	52	24	2559	2590
KEY WEST	75	40	195	375	528	580	638	640	583	485	394	353	4866	4589
LAKELAND U	17	3	93	255	422	504	536	558	513	437	329	254	4183	4038
MIAMI	94	54	163	279	449	515	547	552	513	437	329	254	4183	4038
ORLANDO	26	3	114	259	449	541	550	543	508	321	225	115	3666	3225
PENSACOLA	0	0	21	113	342	522	600	517	175	74	39	0	2922	2695
TALLAHASSEE	0	0	11	87	280	459	497	437	143	41	27	0	2480	2551
TAMPA	18	0	75	232	421	529	605	597	500	319	208	121	3559	3360
WEST PALM BEACH	78	27	152	292	440	506	540	477	380	265	203	0	3860	3780
GEORGIA														
ATHENS	0	0	3	52	154	392	473	423	304	24	4	1	1832	1722
ATLANTA	0	0	2	40	144	346	428	420	345	40	7	1	1773	1589
AUGUSTA	0	0	1	48	177	402	531	497	324	35	9	13	2035	1995
COLUMBUS	0	0	10	84	250	475	457	517	433	109	28	11	2474	2143
MADISON	0	0	0	87	244	481	564	405	224	76	22	9	2380	2294
ROME	0	0	0	24	157	367	499	437	322	17	6	3	1836	1615
SAVANNAH	0	0	22	132	281	456	538	543	403	115	51	29	2570	2317



# MONTHLY AND SEASONAL COOLING DEGREE DAYS

(Base 65°F)

1979

State and Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for Season	Normals Jan.-Dec.
<b>HAWAII</b>														
HONOLOULU	216	213	263	283	353	351	183	275	341	332	279	195	3980	3000
KAHULUI	290	229	312	349	420	430	487	508	483	455	339	282	4593	3737
LIHUE	224	203	274	284	323	362	429	454	443	402	269	260	3925	3719
<b>IDaho</b>														
MOISE	0	0	1	0	6	64	254	200	72	0	0	0	597	714
LEWISTON	0	0	0	0	0	112	294	417	51	0	0	0	876	657
POCATELLO	0	0	0	0	0	28	177	123	41	0	0	0	369	427
<b>ILLINOIS</b>														
CAIRO U	0	0	3	59	204	415	557	407	315	20	3	0	1979	1500
CHICAGO O MAKE	0	0	0	0	60	132	227	443	181	2	0	0	845	604
CHICAGO MIDWAY	0	0	0	0	90	160	249	269	113	0	1	0	982	925
HOLINE	0	0	1	0	87	202	288	267	195	5	0	0	1045	893
PEORIA	0	0	0	0	81	208	316	247	221	0	0	0	1093	968
ROCKFORD	0	0	0	0	75	160	238	220	166	0	0	0	859	714
SPRINGFIELD	0	0	1	8	107	289	358	458	222	5	5	0	1753	1110
<b>INDIANA</b>														
EVANSVILLE	0	0	0	10	125	361	444	366	229	7	2	0	1550	1364
PORT WYNE	0	0	0	0	60	169	251	225	192	1	0	0	898	748
INDIANAPOLIS	0	0	0	0	110	282	382	318	203	1	0	0	1500	974
SOUTH BEND	0	0	0	0	70	173	218	227	179	0	1	0	868	695
<b>IOWA</b>														
SUPLINGTON	0	0	0	0	82	203	284	247	189	1	0	0	1006	994
DES MOINES	0	0	6	0	83	251	341	321	221	3	0	0	1226	924
DUBUQUE	0	0	0	0	52	117	210	402	131	1	0	0	713	606
SIOUX CITY	0	0	3	0	49	210	280	225	159	0	0	0	928	932
WATERLOO	0	0	0	0	79	179	230	416	149	0	0	0	853	675
<b>KANSAS</b>														
CONCORDIA	0	0	6	10	64	303	431	283	235	12	2	0	1446	1302
RODGE CITY	0	0	0	0	77	177	237	414	282	17	6	0	1738	1411
GOODLAND	0	0	0	0	16	192	265	223	137	8	0	0	944	825
TOPEKA	0	0	6	15	101	298	390	339	277	5	3	0	1434	1361
WICHITA	0	0	6	20	122	366	431	310	364	23	5	0	2047	1673
<b>KENTUCKY</b>														
COVINGTON	0	0	0	4	63	231	315	255	200	2	0	0	1070	1080
LEXINGTON	0	0	0	19	69	257	349	290	202	4	0	0	1190	1197
LOUISVILLE	0	0	0	20	110	323	423	383	270	6	2	0	1539	1268
<b>LOUISIANA</b>														
BATON ROUGE	0	0	16	129	371	512	567	526	424	131	63	32	2781	2565
LAKE CHARLES	5	2	20	125	374	480	561	528	407	151	87	25	2767	2739
NEW ORLEANS	0	0	39	203	380	493	535	569	469	169	110	49	3059	2705
SHREVEPORT	5	0	3	84	303	472	637	570	391	96	39	8	2608	2538
<b>MAINE</b>														
CARLETON	0	0	0	0	36	35	97	93	1	0	0	0	264	128
PORTLAND	0	0	0	0	6	22	138	150	20	0	0	0	336	252
<b>MARYLAND</b>														
BALTIMORE	0	0	0	0	63	260	384	413	182	12	0	0	1274	1108
<b>MASSACHUSETTS</b>														
BLUE HILL OBS A	0	0	0	0	31	72	196	180	23	0	0	0	502	457
BOSTON	0	0	0	0	40	122	327	221	48	0	0	0	658	601
WORCESTER	0	0	0	0	32	57	138	137	14	0	0	0	378	387
<b>MICHIGAN</b>														
ALPENA	0	0	0	0	39	61	99	73	26	0	0	0	305	208
DETROIT	0	0	0	0	80	149	216	268	180	1	0	0	894	743
DETROIT METRO	0	0	0	0	63	122	200	221	154	0	0	0	760	654
FLINT	0	0	0	0	31	95	169	172	108	0	0	0	591	438
GRAND RAPIDS	0	0	0	0	92	123	189	123	90	0	0	0	588	575
HOUGHTON LAKE	0	0	0	0	44	49	85	96	34	0	0	0	308	250
LANSING	0	0	0	0	33	110	170	157	115	0	0	0	605	535
MARQUETTE U	0	0	0	0	25	53	76	108	38	2	0	0	302	210
MUSKEGON	0	0	0	0	29	57	109	131	79	0	0	0	405	469
SAULT STE MARIE	0	0	0	0	27	9	40	44	5	0	0	0	125	139
<b>MINNESOTA</b>														
DULUTH	0	0	0	0	17	34	70	64	39	0	0	0	224	176
INTERNATIONAL FALLS	0	0	0	0	24	41	57	63	34	0	0	0	219	176
MINNEAPOLIS	0	0	0	0	72	138	201	236	164	0	0	0	811	585
ROCHESTER	0	0	0	0	39	112	167	149	111	0	0	0	535	474
ST CLOUD	0	0	0	0	39	80	136	123	107	0	0	0	487	426
<b>MISSISSIPPI</b>														
JACKSON	2	0	0	92	235	456	576	536	409	60	31	24	2421	2321
MEMPHIS	1	0	0	44	193	418	522	498	390	40	9	15	2130	2231
<b>MISSOURI</b>														
COLUMBIA REGIONAL	0	0	1	10	99	266	444	273	305	11	5	0	1520	1269
KANSAS CITY	0	0	5	14	86	300	452	364	295	11	8	0	1535	1295
ST JOSEPH	0	0	7	15	99	315	448	354	261	1	3	0	1498	1334
ST LOUIS	0	0	7	17	120	295	426	360	276	10	8	0	1519	1475
SPRINGFIELD	0	0	0	6	104	249	511	380	293	22	0	0	1565	1382
<b>MONTANA</b>														
BILLINGS	0	0	0	0	12	71	140	128	78	0	0	0	429	498
GLASGOW	0	0	0	0	7	47	114	107	45	0	0	0	320	438
GREAT FALLS	0	0	0	0	0	36	125	111	60	0	0	0	332	339
HAVER	0	0	0	0	2	32	126	108	54	0	0	0	382	395
WELSH	0	0	0	0	3	37	109	85	37	0	0	0	271	236
KALISPELL	0	0	0	0	0	8	51	39	6	0	0	0	107	117
MILES CITY	0	0	0	0	22	105	222	198	114	0	0	0	661	752
MISSOULA	0	0	0	0	0	14	83	69	19	0	0	0	185	188





# MONTHLY AND SEASONAL COOLING DEGREE DAYS

(Base 65 F)

State and Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Cooling Season	Normals Jan. - Dec.
NEBRASKA														
GRAND ISLAND	0	0	5	7	47	293	355	283	169	2	0	0	1159	1035
LINCOLN	0	0	5	7	46	230	371	323	195	3	0	0	1175	1035
NORFOLK	0	0	4	0	0	244	330	257	175	3	0	0	1069	924
NORTH PLATTE	0	0	0	0	1	21	307	218	117	5	0	0	843	852
OMAHA	0	0	0	0	5	67	287	313	231	5	0	0	1921	1173
OMAHA (NORTH)	0	0	0	0	2	58	252	317	252	2	0	0	1128	949
SCOTT'S BLUFF	0	0	0	0	0	160	316	198	121	0	0	0	859	859
VALENTINE	0	0	0	0	22	163	239	213	121	0	0	0	790	650
NEVADA														
ELKO	0	0	0	0	0	9	179	450	21	0	0	0	395	342
LAS VEGAS	0	0	0	0	0	110	110	752	425	268	0	0	205	207
RENO	0	0	17	40	277	672	184	199	19	0	0	0	3300	2946
WINNEMUCCA	0	0	0	0	5	31	234	197	18	0	0	0	340	329
NEW HAMPSHIRE														
CONCORD	0	0	0	0	46	83	198	186	8	0	0	0	485	407
MT WASHINGTON OBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW JERSEY														
ATLANTIC CITY	0	0	0	0	19	143	233	364	74	4	0	0	837	864
ATLANTIC CITY U	0	0	0	0	9	72	186	297	69	0	0	0	833	835
NEWARK	0	0	0	0	59	217	325	367	105	15	0	0	1289	1224
TRENTON U	0	0	0	0	47	207	275	242	99	6	0	0	976	908
NEW MEXICO														
ALBUQUERQUE	0	0	0	4	41	324	421	330	151	27	0	0	1398	1316
CLAYTON	0	0	0	34	177	372	421	100	8	0	0	0	910	707
ROSWELL	0	0	8	91	244	438	576	410	187	37	0	0	1991	1500
NEW YORK														
ALBANY	0	0	0	0	47	70	169	154	16	0	0	0	456	574
BINGHAMTON	0	0	0	0	58	68	105	154	14	0	0	0	459	309
BUFFALO	0	0	0	0	52	91	189	173	55	0	0	0	540	437
NEW YORK U	0	0	0	0	77	209	301	248	81	4	0	0	1020	1020
NEW YORK KENNEDY	0	0	0	0	37	185	304	248	81	4	0	0	1020	1020
NEW YORK LA GUARDIA	0	0	0	0	44	172	305	248	81	4	0	0	1020	1020
ROCHESTER	0	0	0	0	77	141	245	220	86	5	0	0	1242	861
SYRACUSE	0	0	0	0	49	92	231	215	65	3	0	0	919	1043
NORTH CAROLINA														
ASHEVILLE	0	0	0	2	53	188	266	292	168	4	0	0	623	531
CAPE HATTERAS R	0	0	0	13	98	271	411	493	345	48	0	0	973	872
CHARLOTTE	0	0	0	41	132	343	438	440	287	13	21	7	1677	1552
GREENSBORO	0	0	0	11	80	203	304	384	216	4	0	0	1596	1595
RALEIGH	0	0	0	30	120	330	412	408	275	21	3	10	1322	1341
WILMINGTON	0	0	0	68	187	372	482	536	359	63	17	13	2097	1904
NORTH DAKOTA														
BISMARCK	0	0	0	13	50	141	143	128	0	0	0	0	475	467
FARGO	0	0	0	21	86	165	176	146	0	0	0	0	604	473
WILLISTON	0	0	0	19	60	142	125	75	0	0	0	0	421	422
OHIO														
AKRON	0	0	0	0	54	143	185	226	159	0	0	0	767	634
CINCINNATI ABBE OB	0	0	0	0	42	253	329	281	224	0	0	0	1177	1186
CLEVELAND	0	0	0	9	53	170	237	256	177	3	0	0	896	613
COLUMBUS	0	0	0	0	59	190	270	261	184	0	0	0	968	909
DAYTON	0	0	0	0	36	219	265	210	184	0	0	0	945	818
HANFORD	0	0	0	0	58	128	209	226	174	0	0	0	805	682
TOLDO	0	0	0	0	37	102	142	176	117	0	0	0	574	518
YOUNGSTOWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OKLAHOMA														
OKLAHOMA CITY	0	0	8	80	105	378	690	553	450	87	7	0	2418	1876
TULSA	0	0	7	73	180	388	713	605	476	79	14	0	2535	1949
OREGON														
ASTORIA	0	0	0	0	0	0	6	8	0	0	0	0	14	13
BURNS U	0	0	0	0	0	0	0	0	0	0	0	0	27	289
EUGENE	0	0	0	0	12	142	118	118	10	0	0	0	235	209
MEADOWS	0	0	0	0	2	34	101	88	6	0	0	0	57	502
ORNOLETON	0	0	0	0	4	93	244	205	11	0	0	0	528	550
PORTLAND	0	0	0	0	1	55	141	112	18	0	0	0	343	300
SALEM	0	0	0	0	3	69	236	182	10	0	0	0	528	550
SEXTON SUMMIT R	0	0	0	0	63	143	130	100	16	0	0	0	233	197
PACIFIC AREA														
GUAM TAGUAC R	368	329	413	451	304	454	406	445	449	403	421	413	5176	5011
JOHNSTON	391	360	397	403	434	484	523	529	499	504	428	377	5355	5030
KOROR R	513	429	535	513	556	510	562	495	484	511	508	529	6125	5008
MAJALFIN	525	463	549	519	507	509	521	562	530	552	507	535	6206	5704
MAJURO	508	456	517	482	486	448	483	518	509	474	437	482	5922	5325
PAGO PAGO	501	472	483	467	456	476	439	455	445	474	437	482	5922	5325
PONAPE R	508	459	534	501	530	456	513	484	498	470	503	521	6028	5632
TRUK MOEN ISLAND	514	475	545	520	527	515	546	543	517	528	511	534	6209	5885
WAKE	374	338	378	439	476	505	544	590	577	588	495	486	5774	5435
VAR R	476	417	508	508	538	498	513	486	462	467	488	507	5868	5910
PENNSYLVANIA														
ALLENTOWN	0	0	0	0	65	196	247	264	76	0	0	0	848	772
ARTS	0	0	0	0	32	94	102	198	48	0	0	0	324	373
HARRISBURG	0	0	0	0	89	162	278	377	133	1	0	0	1015	1025
PHILADELPHIA	0	0	0	0	57	244	328	447	153	8	0	0	1247	1104
PITTSBURGH	0	0	0	0	69	178	260	207	122	0	0	0	886	647
SCRANTON	0	0	0	0	52	84	181	194	122	0	0	0	537	608
WILLIAMSPORT	0	0	0	0	63	134	237	210	83	0	0	0	827	698
RHODE ISLAND														
PROVIDENCE	0	0	0	0	42	113	198	25	0	0	0	0	378	359
WLOCK ISLAND	0	0	0	0	25	126	224	211	24	0	0	0	610	592





# MONTHLY AND SEASONAL COOLING DEGREE DAYS

(Base 65°F)

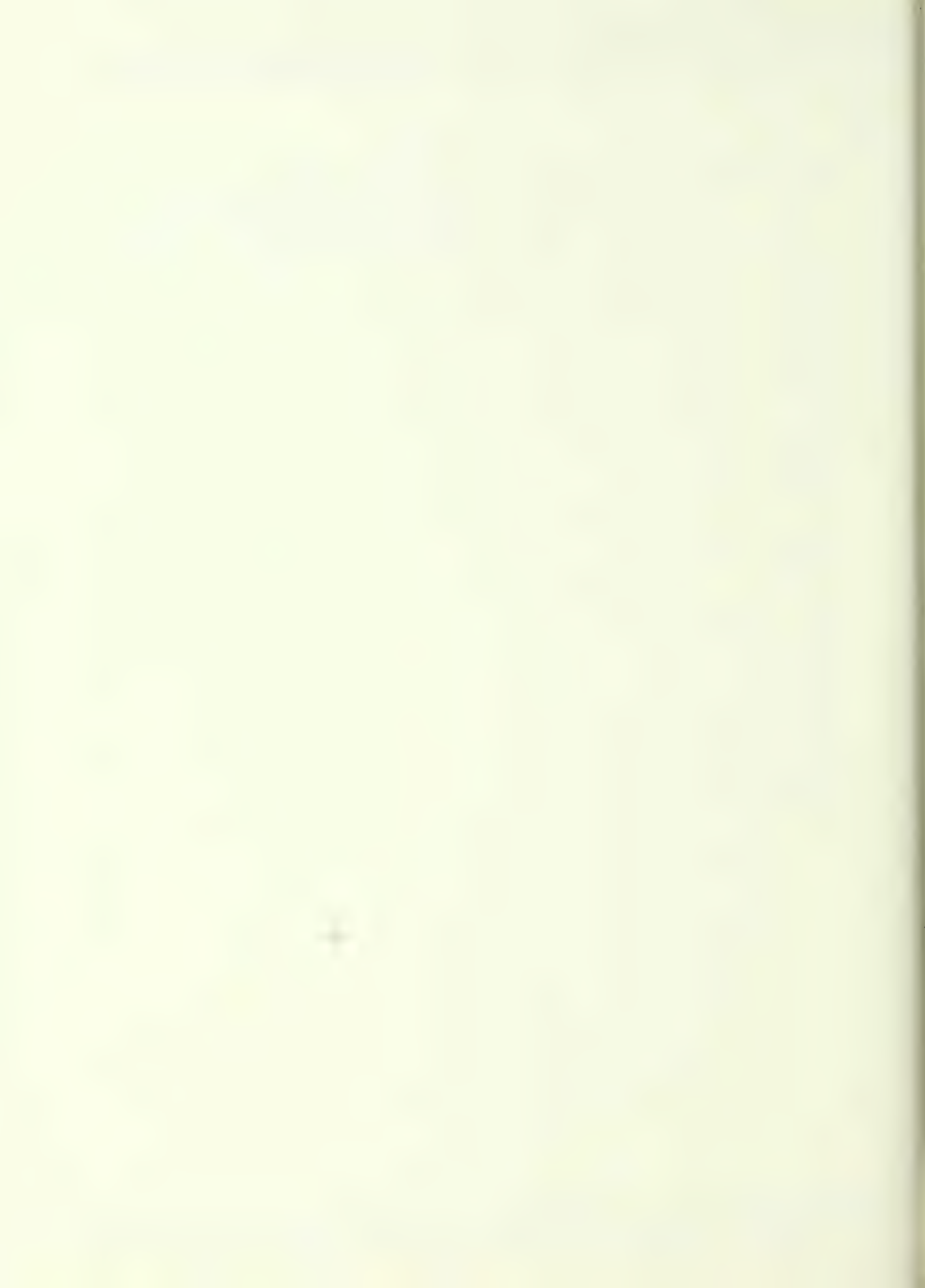
State and Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for Season	Normals Jan. - Dec.
<b>SOUTH CAROLINA</b>														
CHARLESTON	0	0	13	108	242	414	505	214	378	85	40	21	2319	2379
CHARLESTON U	0	0	3	113	274	468	540	264	404	125	56	24	2375	2334
COLUMBIA	0	0	1	56	172	369	565	376	404	82	17	17	2512	2487
GRNVILLE-SPRTNBAG	0	0	0	27	109	319	403	404	262	17	0	0	1559	1573
<b>SOUTH DAKOTA</b>														
ABERDEEN	0	0	0	0	21	100	179	206	152	0	0	0	658	560
MURDOCK	0	0	0	0	21	119	196	427	173	0	0	0	736	711
RAPID CITY	0	0	0	0	9	99	214	493	154	0	0	0	669	661
SIOUX FALLS	0	0	0	0	32	133	207	213	163	0	0	0	743	719
<b>TENNESSEE</b>														
BRISTOL	0	0	0	6	53	204	299	302	224	4	0	0	1092	1107
CHATTANOOGA	0	0	0	48	104	350	507	432	325	14	2	0	1847	1835
KNOXVILLE	0	0	0	37	131	319	432	384	302	8	0	0	1612	1569
MEMPHIS	0	0	0	122	239	452	590	301	367	46	0	0	2157	2129
NASHVILLE	0	0	1	50	152	344	489	432	324	13	2	0	1807	1894
OAK RIDGE	0	0	0	3	89	234	342	335	240	1	0	0	1244	1307
<b>TEXAS</b>														
ARLINGTON	0	0	35	201	392	555	751	542	379	121	23	1	3000	2465
AMARILLO	0	0	6	33	108	324	497	351	209	28	0	0	1556	1433
ALSTON	0	0	31	167	376	525	670	621	427	161	50	0	2077	2035
BROOKSVILLE	22	38	129	309	572	905	680	638	524	342	228	92	4188	4174
CORPUS CHRISTI	18	16	74	243	502	961	1447	622	511	294	177	56	3691	3474
DALLAS FT. WORTH	0	0	16	125	301	524	733	614	462	153	37	0	2965	2587
DEL RIO	0	0	7	274	473	571	710	614	415	150	49	1	3344	3161
EL PASO	0	0	8	98	293	559	612	474	238	70	2	0	2356	2098
GALVESTON	1	0	5	124	373	535	695	613	499	273	128	25	3173	3004
HOUSTON INTERCON	10	5	19	120	369	471	584	568	437	150	108	25	2865	2589
LUBBOCK	0	0	12	85	230	426	452	417	248	46	0	0	2225	1947
MCKINNEY	0	0	38	139	280	401	531	438	293	31	0	0	2172	2250
PORT ARTHUR	11	8	29	177	439	555	627	635	510	227	154	49	3421	2788
SAN ANGELO	0	0	22	204	360	467	634	454	302	72	13	0	2528	2702
SAN ANTONIO	3	7	30	132	384	537	660	567	410	154	79	11	2934	2994
VICTORIA	10	8	39	177	426	515	679	516	476	205	116	23	3232	3142
WACO	2	0	21	181	383	568	757	666	496	169	30	5	3279	2853
WICHITA FALLS	0	0	27	129	281	481	777	550	449	98	17	0	2808	2611
<b>UTAH</b>														
MILFORD	0	0	0	0	0	64	264	176	54	0	0	0	558	688
SALT LAKE CITY	0	0	0	0	21	164	411	299	120	0	0	0	1018	927
<b>VERMONT</b>														
BURLINGTON	0	0	0	0	79	64	194	146	6	0	0	0	489	396
<b>VIRGINIA</b>														
LYNCHBURG	0	0	0	9	88	237	305	389	212	5	0	0	1245	1100
NOFOLK	0	0	0	9	96	286	352	427	257	36	0	0	1335	1461
RICHMOND	0	0	0	12	112	302	393	475	263	15	0	1	1373	1393
ROANOKE	0	0	0	7	79	249	347	391	228	2	0	0	1297	1030
WALLOPS ISLAND	0	0	0	0	23	158	280	410	179	12	0	0	1062	1107
<b>WASHINGTON</b>														
OLYMPIA	0	0	0	0	1	43	64	38	0	0	0	0	146	101
QUILLAYUTE	0	0	0	0	0	0	18	17	0	0	0	0	42	8
SEATTLE	0	0	0	0	2	44	66	49	0	0	0	0	161	183
SEATTLE-TACOMA	0	0	0	0	4	66	76	64	0	0	0	0	210	129
SPokane	0	0	0	0	0	42	144	131	9	0	0	0	326	386
STAMPEDE PASS R	0	0	0	0	0	12	19	29	0	0	0	0	80	16
WALLA WALLA U	0	0	0	0	7	101	116	232	38	0	0	0	754	862
YAKIMA	0	0	0	0	0	73	198	136	9	0	0	0	412	479
<b>WEST INDIES</b>														
SAN JUAN P.R.	420	404	484	462	499	526	566	370	575	555	513	459	6013	4982
<b>WEST VIRGINIA</b>														
BECKLEY	0	0	0	5	33	88	147	175	96	0	0	0	532	490
CHARLESTON	0	0	0	14	88	207	279	314	205	4	1	0	1114	1055
ELKINS	0	0	0	1	13	76	147	179	82	0	0	0	498	389
HUNTINGTON	0	0	0	18	85	261	361	344	234	5	0	0	1308	1096
PARKERSBURG U	0	0	0	4	65	195	272	295	183	0	0	0	1014	1045
<b>WISCONSIN</b>														
GREEN BAY	0	0	0	0	43	71	115	131	80	0	0	0	440	386
LA CROSSE	0	0	0	0	61	116	187	272	183	1	0	0	820	695
MADISON	0	0	0	0	56	92	171	168	102	0	0	0	589	460
MILWAUKEE	0	0	0	0	40	87	138	164	109	0	0	0	548	430
<b>WYOMING</b>														
CASPER	0	0	0	0	2	72	176	124	74	0	0	0	442	458
CHEYENNE	0	0	0	0	1	43	150	39	44	0	0	0	297	327
LANDER	0	0	0	0	0	56	179	109	64	0	0	0	408	383
SHERIDAN	0	0	0	0	1	30	103	94	62	0	0	0	290	446



21. Y. Q. 1978

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## Average monthly values

7177-810 1970

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## Average monthly values

September 1978

2025 RELEASE UNDER E.O. 14176

CARTERSVILLE, GA 874 M										CENTREVILLE, VA 1020 M										HARTMAN, UT 1030 M										CHAMBERLAIN, NE 1022 M										HARRISBURG, PA 858 M																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant



Average monthly values

INTERNATIONAL FALLS, MN 949 MB					ISLE DU CŒUR 1013 MB					JACKSON, MS 1009 MB					JOHN F. KENNEDY INT. AP NW 1016 MB					JOHNSON IS., PACIFIC AREA 1013 MB					
UTC	31	350	-19.1	-22.2	23	1.4	31	10	25.9	21.9	2.8	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
93C	31	518	-16.2	-17.0	25	2.5	31	125	21.9	19.2	2.9	31	100	7.5	2.81	1.30	1.6	-4.27	2.6	31	12	28.8	21.3	07	9.5
50C	29	518	-16.2	-17.0	25	2.5	31	125																	





Average monthly values

05000000 0000

- 21 -





# RAWINSONDE DATA

Average monthly values

DECEMBER 1974

PORTLAND, ME 1011 MB										WILMINGTON, DE 1011 MB										DAVIS CITY, MO 901 MB										ST CLOUD, MN 977 MB										ST PAUL ISLAND, AK 997 MB											
Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb											
No. of observations										No. of observations										No. of observations										No. of observations										No. of observations											
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters											
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C											
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C											
Direction unit of day										Direction unit of day										Direction unit of day										Direction unit of day										Direction unit of day											
Speed mps										Speed mps										Speed mps										Speed mps										Speed mps											
No. of observations										No. of observations										No. of observations										No. of observations										No. of observations											
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters											
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C											
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C											
Direction unit of day										Direction unit of day										Direction unit of day										Direction unit of day										Direction unit of day											
Speed mps										Speed mps										Speed mps										Speed mps										Speed mps											
1000	930	920	910	900	890	880	870	860	850	1000	930	920	910	900	890	880	870	860	850	1000	930	920	910	900	890	880	870	860	850	1000	930	920	910	900	890	880	870	860	850	1000	930	920	910	900	890	880	870	860	850		
950	940	930	920	910	900	890	880	870	860	950	940	930	920	910	900	890	880	870	860	950	940	930	920	910	900	890	880	870	860	950	940	930	920	910	900	890	880	870	860	950	940	930	920	910	900	890	880	870	860		
900	950	940	930	920	910	900	890	880	870	900	950	940	930	920	910	900	890	880	870	900	950	940	930	920	910	900	890	880	870	900	950	940	930	920	910	900	890	880	870	900	950	940	930	920	910	900	890	880	870	860	
850	960	950	940	930	920	910	900	890	880	850	960	950	940	930	920	910	900	890	880	850	960	950	940	930	920	910	900	890	880	850	960	950	940	930	920	910	900	890	880	850	960	950	940	930	920	910	900	890	880	870	860
800	970	960	950	940	930	920	910	900	890	800	970	960	950	940	930	920	910	900	890	800	970	960	950	940	930	920	910	900	890	800	970	960	950	940	930	920	910	900	890	800	970	960	950	940	930	920	910	900	890	880	
750	980	970	960	950	940	930	920	910	900	750	980	970	960	950	940	930	920	910	900	750	980	970	960	950	940	930	920	910	900	750	980	970	960	950	940	930	920	910	900	750	980	970	960	950	940	930	920	910	900	890	
700	990	980	970	960	950	940	930	920	910	700	990	980	970	960	950	940	930	920	910	700	990	980	970	960	950	940	930	920	910	700	990	980	970	960	950	940	930	920	910	700	990	980	970	960	950	940	930	920	910	900	
650	1000	990	980	970	960	950	940	930	920	650	1000	990	980	970	960	950	940	930	920	650	1000	990	980	970	960	950	940	930	920	650	1000	990	980	970	960	950	940	930	920	650	1000	990	980	970	960	950	940	930	920	910	
600	1010	1000	990	980	970	960	950	940	930	600	1010	1000	990	980	970	960	950	940	930	600	1010	1000	990	980	970	960	950	940	930	600	1010	1000	990	980	970	960	950	940	930	600	1010	1000	990	980	970	960	950	940	930	920	
550	1020	1010	1000	990	980	970	960	950	940	550	1020	1010	1000	990	980	970	960	950	940	550	1020	1010	1000	990	980	970	960	950	940	550	1020	1010	1000	990	980	970	960	950	940	550	1020	1010	1000	990	980	970	960	950	940	930	
500	1030	1020	1010	1000	990	980	970	960	950	500	1030	1020	1010	1000	990	980	970	960	950	500	1030	1020	1010	1000	990	980	970	960	950	500	1030	1020	1010	1000	990	980	970	960	950	500	1030	1020	1010	1000	990	980	970	960	950	940	
450	1040	1030	1020	1010	1000	990	980	970	960	450	1040	1030	1020	1010	1000	990	980	970	960	450	1040	1030	1020	1010	1000	990	980	970	960	450	1040	1030	1020	1010	1000	990	980	970	960	450	1040	1030	1020	1010	1000	990	980	970	960	950	
400	1050	1040	1030	1020	1010	1000	990	980	970	400	1050	1040	1030	1020	1010	1000	990	980	970	400	1050	1040	1030	1020	1010	1000	990	980	970	400	1050	1040	1030	1020	1010	1000	990	980	970	400	1050	1040	1030	1020	1010	1000	990	980	970	960	
350	1060	1050	1040	1030	1020	1010	1000	990	980	350	1060	1050	1040	1030	1020	1010	1000	990	980	350	1060	1050	1040	1030	1020	1010	1000	990	980	350	1060	1050	1040	1030	1020	1010	1000	990	980	350	1060	1050	1040	1030	1020	1010	1000	990	980	870	
300	1070	1060	1050	1040	1030	1020	1010	1000	990	300	1070	1060	1050	1040	1030	1020	1010	1000	990	300	1070	1060	1050	1040	1030	1020	1010	1000	990	300	1070	1060	1050	1040	1030	1020	1010	1000	990	300	1070	1060	1050	1040	1030	1020	1010	1000	990	980	
250	1080	1070	1060	1050	1040	1030	1020	1010	1000	250	1080	1070	1060	1050	1040	1030	1020	1010	1000	250	1080	1070	1060	1050	1040	1030	1020	1010	1000	250	1080	1070	1060	1050	1040	1030	1020	1010	1000	250	1080	1070	1060	1050	1040	1030	1020	1010	1000	990	
200	1090	1080	1070	1060	1050	1040	1030	1020	1010	200	1090	1080	1070	1060	1050	1040	1030	1020	1010	200	1090	1080	1070	1060	1050	1040	1030	1020	1010	200	1090	1080	1070	1060	1050	1040	1030	1020	1010	200	1090	1080	1070	1060	1050	1040	1030	1020	1010	1000	
150	1100	1090	1080	1070	1060	1050	1040	1030	1020	150	1100	1090	1080	1070	1060	1050	1040	1030	1020	150	1100	1090	1080	1070	1060	1050	1040	1030	1020	150	1100	1090	1080	1070	1060	1050	1040	1030	1020	150	1100	1090	1080	1070	1060	1050	1040	1030	1020	1010	
100	1110	1100	1090	1080	1070	1060	1050	1040	1030	100	1110	1100	1090	1080	1070	1060	1050	1040	1030	100	1110	1100	1090	1080	1070	1060	1050	1040	1030	100	1110	1100	1090	1080	1070	1060	1050	1040	1030	100	1110	1100	1090	1080	1070	1060	1050	1040	1030	1020	
50	1120	1110	1100	1090	1080	1070	1060	1050	1040	50	1120	1110	1100	1090	1080	1070	1060	1050	1040	50	1120	1110	1100	1090	1080	1070	1060	1050	1040	50	1120	1110	1100	1090	1080	1070	1060	1050	1040	50	1120	1110	1100	1090	1080	1070	1060	1050	1040	1030	
0	1130	1120	1110	1100	1090	1080	1070	1060	1050	0	1130	1120	1110	1100	1090	1080	1070	1060	1050	0	1130	1120	1110	1100	1090	1080	1070	1060	1050	0	1130	1120	1110	1100	1090	1080	1070	1060	1050	0	1130	1120	1110	1100	1090	1080	1070	1060	1050	1040	



## RAWINSONDE DATA

Average monthly values

1950-1951 1950

STATION: FL 987 MO												STATION: MO 473 MO										STATION: CA 1003 MO										STATION: MO 1087 MO															
Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb												Standard pressure surface mb											
No. of observations												No. of observations												No. of observations												No. of observations											
Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters											
Temperature °C												Temperature °C												Temperature °C												Temperature °C											
Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C											
Resultant Wind												Resultant Wind												Resultant Wind												Resultant Wind											
Speed mps												Speed mps												Speed mps												Speed mps											
Direction												Direction												Direction												Direction											
Speed mps												Speed mps																																			





## Average monthly values

DEC-26 1978

[illegible]

De la...  
Langlois





# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

DECEMBER 1976

Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	
PALMA LGA OBSERVATORY, HI																			
Air mass										Air mass									
3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34											
3-----	1.17	1.27	1.37	----	1.57	----	----	----											
4-----	1.14	1.24	1.34	1.45	----	1.45	1.16	1.33	1.23										
14-----	1.30	1.39	1.46	1.58	1.66	1.76	1.46	1.57	1.30										
23-----	1.31	1.44	1.47	1.57	1.66	1.67	1.46	1.38	1.29										
24-----	-----	-----	-----	-----	1.62	-----	-----	-----	-----										
26-----	-----	-----	-----	-----	1.61	1.52	1.41	1.31	1.24										
27-----	-----	-----	-----	-----	1.65	1.55	1.46	1.37	1.29										
Averages	1.23	1.34	1.41	1.53	1.63	1.53	1.43	1.35	1.27										

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's	- 35 -	- 27 -	- 9 -	- 6 -	- 8 -	- 48 -	- 16 -	- 36 -	- 55 -	- 51 -	- 60 -	- 49 -	- 50 -	- 26 -	- 31 -	- 52 -	- 15 -	- 17 -	- 59 -	- 16 -	- 56 -	- 28 -	- 5 -	- 5 -	- 91 -	- 26 -	- 6 -	- 16 -	- 17 -	- 55 -	- 44 -	- 34









## REFERENCE NOTES

**OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION - BY STATES:** Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snow-fall.

**CLIMATOLOGICAL DATA - METRIC UNITS:** Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- T Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- 0 Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

- 1 foot = 0.3048 meters
- °C. =  $\frac{9}{5} \times ^\circ\text{C} + 32$
- 1 inch = 25.4 millimeters
- 1 mile per hour = 0.447 meters per second

**HEATING DEGREE DAYS:** Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

**COOLING DEGREE DAYS:** Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

### STORM SUMMARY:

- 0 Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- 1 Includes heavy sleet storm.
- F Freezing drizzle and freezing rain, commonly known as glaze.
- 0 For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- 2 No Storm Data Report received for this State.
- ◇ Report Incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

### RAVINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for ravinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 60° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 3 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by ravinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- 0 Ravinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These ravinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( ) Clouds Present	DM Moderate Dust	BM Moderate Haze	ES Slight Smoke
0 Values corresponding to true solar noon	DS Slight Dust	BS Slight Haze	M Moderate Haze-indeterminable
ED Blowing Dust	F Fog	I Intense Haze-indeterminable	N Sand
EM Blowing Sand	CF Ground Fog	K Smoke	S Slight Haze-indeterminable
D Dust	H Haze	KI Intense Smoke	
DI Intense Dust	HI Intense Haze	EM Moderate Smoke	

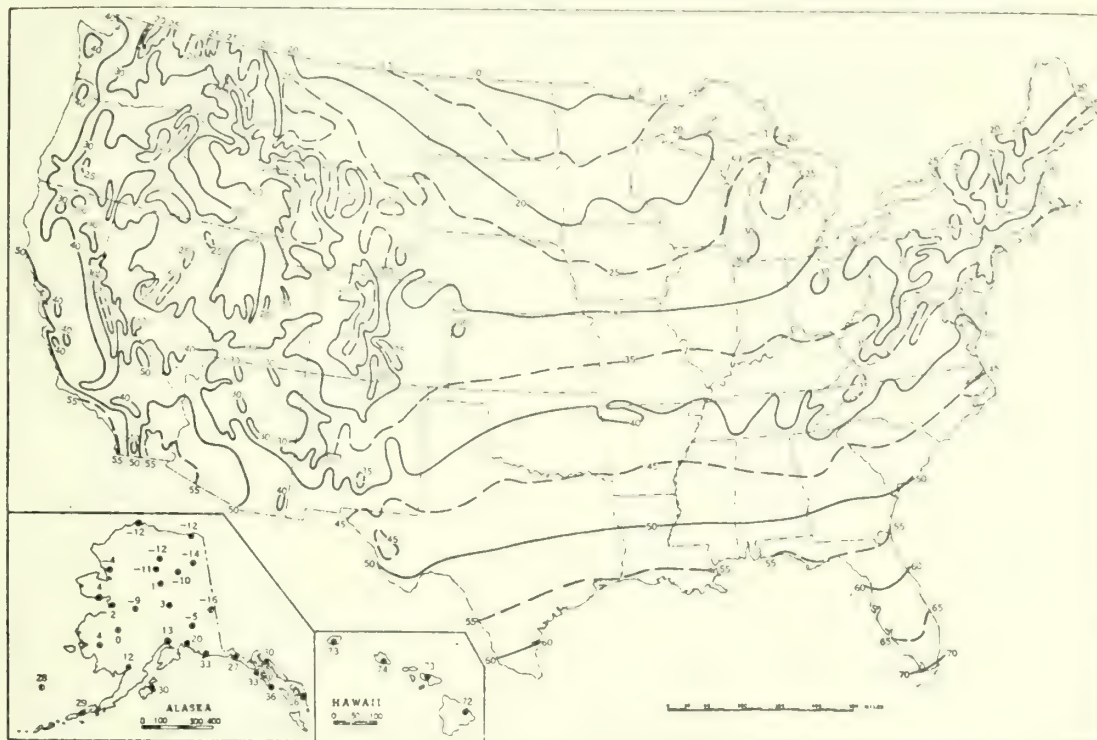
**NET RADIATION:** The measurement is made with a CSIRO PUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.





Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), December.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), December 1978

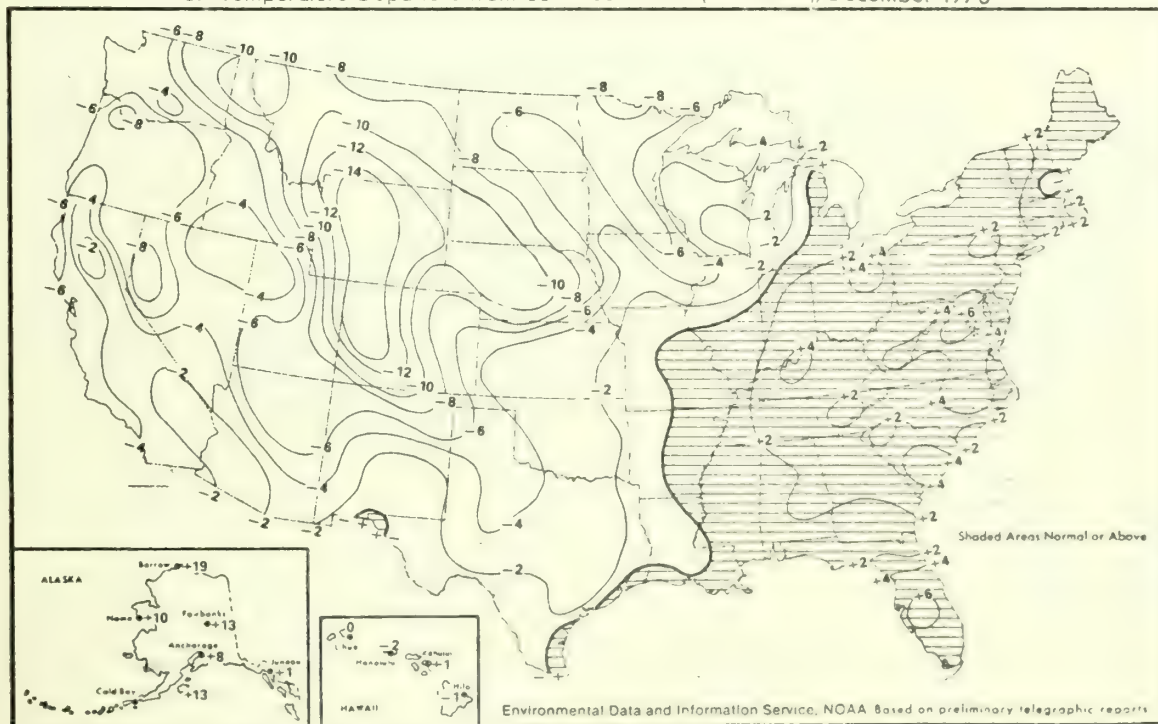




Chart II. A Total Precipitation (Inches), December 1978



B Percentage of Normal Precipitation, December 1978

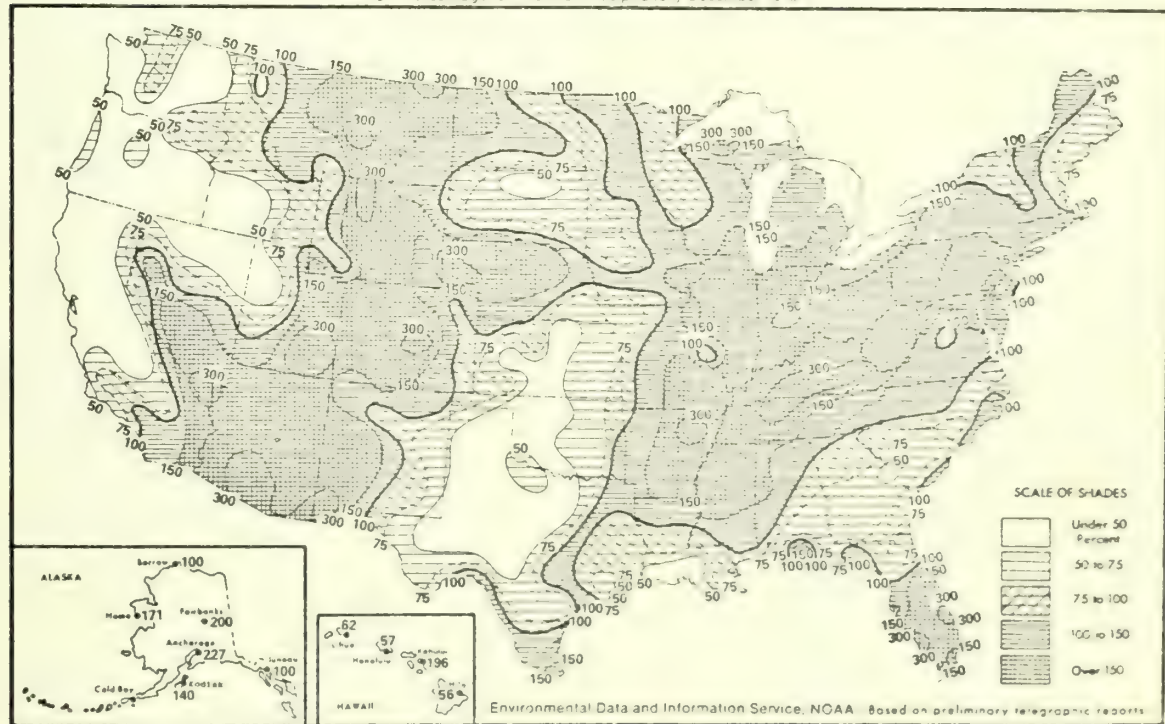
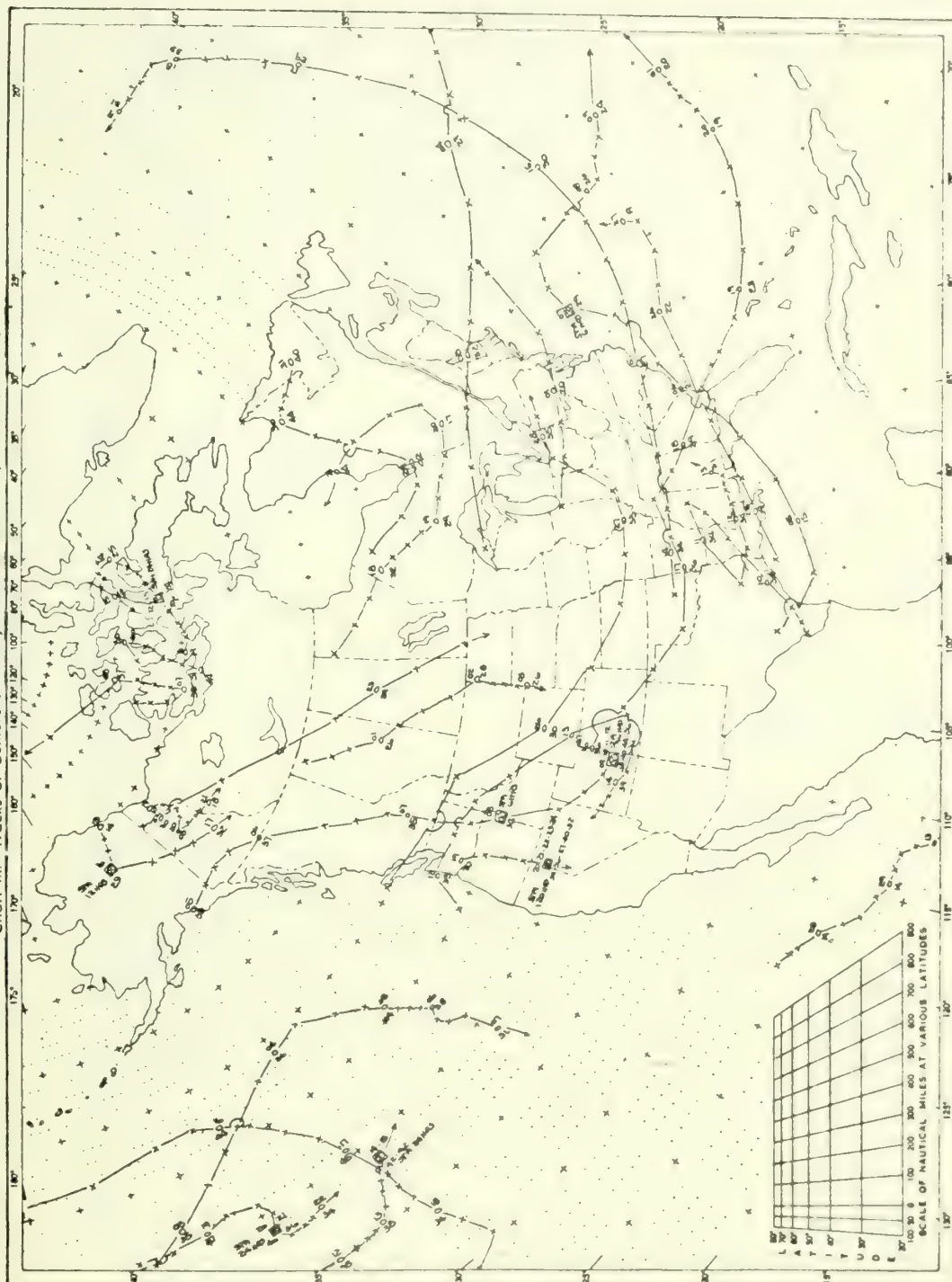






Chart III. Tracks of Centers of Anticyclones at Sea Level, December 1978

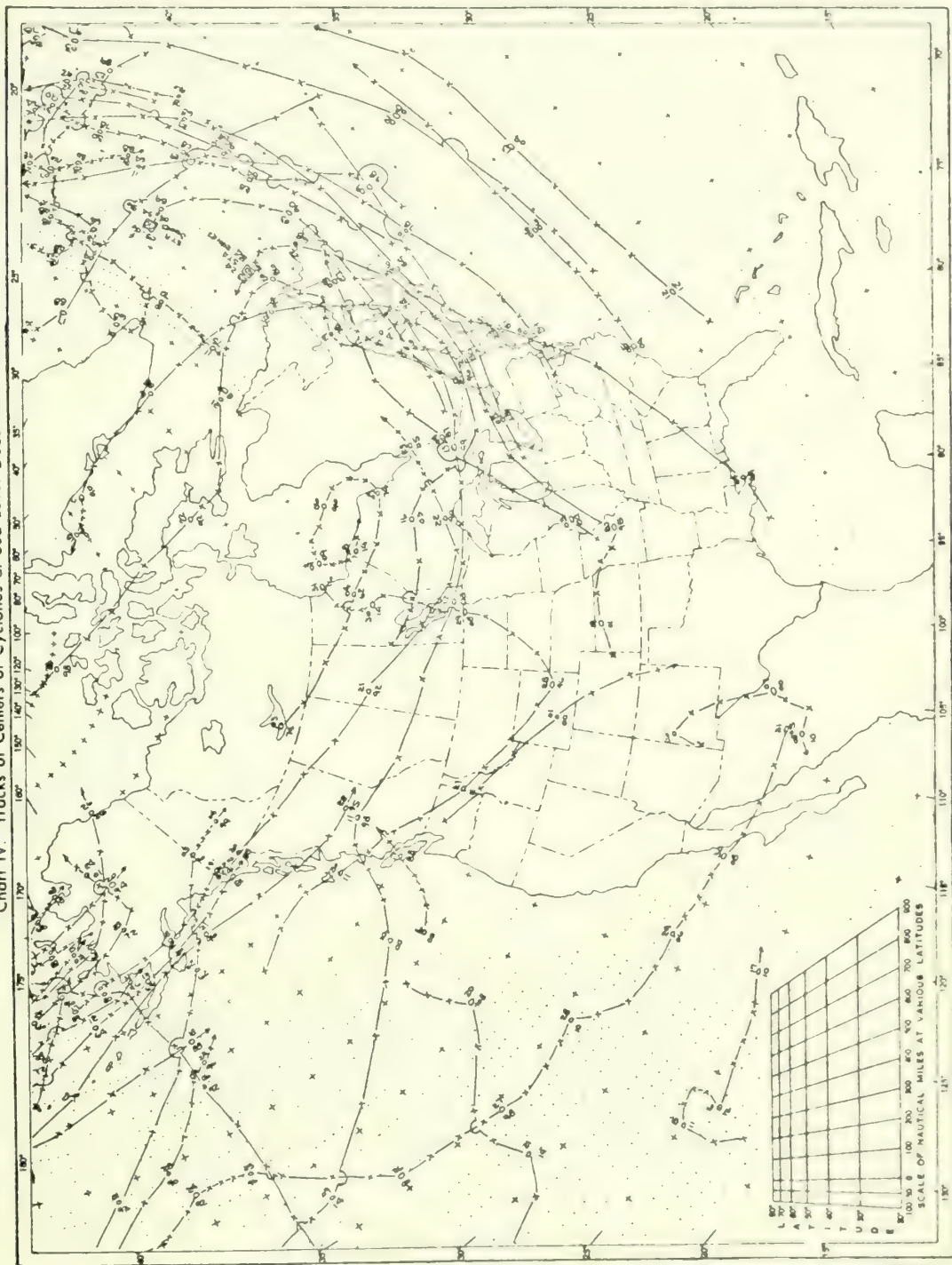


Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure in nearest millibar. X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.





Chart IV. Tracks of Centers of Cyclones at Sea Level December 1978



Circle indicates position of center at 7:00 a.m. EST. Figure below circle indicates date, figure below pressure in nearest millibar. 'X's indicate intervening 6 hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position (only those centers which could be identified for 24 hours or more are included).



# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

YEAR 1978

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lewis A. Blodgett, Meteorological Advisor, NCC

January was a severe winter month for all the Nation east of the Rockies, remarkably similar to the year before. Continual surges of Arctic air kept temperatures far below normal. West of the Rockies, warm temperatures prevailed.

Precipitation, however, in notable contrast to the previous year, was heavy in the West, resulting in serious flooding in California. Precipitation was above normal in the East as well, with a drier than normal band from central Texas northward through the Plains. Late in the month, the Ohio Valley experienced a severe blizzard in one of its most intense storms of record.

The temperature pattern established in January continued through February, resulting in one of the coldest Februaries of record east of the Rockies. Although the eastern half of the Nation was drier than normal, the coastal New England area experienced its worst blizzard of record on the 7th and 8th. The cold temperatures preserved the resulting heavy snow cover the rest of the month, although very little further precipitation occurred. The West continued wet and warmer than normal.

The cold winter continued through the first half of March with record low temperatures for the month set at many Eastern stations. However, spring was evident later in the month as warm temperatures occurred across most of the Nation. These caused rapid snow melt and flooding in the Mississippi River system. Overall, March continued the pattern of warmer than normal in the West, with an eastward expansion of the warmer area, and below normal in the East. Most of the Country was drier than normal, with heavier precipitation confined to the Southwest, a small area centered over Missouri, and pockets along the Eastern Seaboard.

Early April was marked by warm temperatures and excessive rain in many areas except the Southeast. Cooler temperatures prevailed later in the month with freezes as far south as South Carolina, coupled with heavy rains and flooding in the previously dry Southeast. The month averaged wetter than normal in the Northwest, the Northern

Plains, New England, and parts of the Southeast. The mid-South and Southwest were dry. Most of the Nation, except the Far West and Great Lakes area, was somewhat warmer than normal.

May was cool and wet in the Corn Belt, delaying the start of important agricultural activities. Some improvement later in the month allowed more planting, but this was still lagging behind the usual dates. Much of the West was dry, as were southern Texas, Florida, and parts of the Northeast. Record-breaking high temperatures along the northern tier of states near the end of the month contributed to a warmer than normal May in that area, as well as parts of the Southwest, southern Texas, along the Gulf Coast, and most of Florida. In between, a broad band of subnormal temperatures prevailed.

As not uncommon for a summer month, June presented a spotty picture of rainfall anomalies. However, most of the Nation was drier than normal, with wetter than normal areas confined mostly to the mid-South and a relatively narrow band across the Northern Plains to New England, where frontal activity resulted in heavy showers. The Southwest was very hot, with warmer than normal temperatures prevailing in most of the Nation, except the Northeast.

The high temperatures in the Southwest continued during July and expanded across the South. Texas, especially, suffered from extreme heat with record consecutive days of 100° or over at some stations. Drought accompanied the heat until the very end of the month, when, and extending into the first few days of August, in a spectacular reversal of conditions, Tropical Storm Amelia brought record rains and severe flooding to some parts of Texas. The Northwest and Northern Plains, in contrast to the southern half of the Nation, remained rather cool and wet.

August, as noted above, was ushered in by heavy rains in Texas from Tropical Storm Amelia. Some areas were flooded by over 20 inches from the storm. Tropical Storm Debra brought torrential rain to southern Louisiana late in the month.

## GENERAL SUMMARY OF WEATHER CONDITIONS

YEAR 1978

Heavier than normal rain fell in the Pacific Northwest, usually dry this month, as well as the western Great Lakes area and the Ohio Valley. The West continued very hot, especially early in the month, as Red Bluff, California watched the temperature climb to a record 119° twice. By the middle of the month, the West cooled considerably, when it was the East's turn to become warm. The month ended with most of the Nation averaging warmer than normal except the Rocky Mountain area and the Northwest inland from the Cascades.

September continued wet in the Northwest, with a notable expansion of the wet area southward and eastward, as Tropical Storm Norman brought heavy rains to California at a normally dry time, seriously damaging some crops. Heavy precipitation also fell in Nevada. Later in the month heavy snow fell in the Rockies as surges of cold air swept the West, keeping that area below normal in temperature. East of the Rockies, except for New England, the Nation experienced a warmer than normal September. The Southeast, Atlantic Coast and parts of the Plains were notably dry. Lynchburg, Virginia recorded only 0.02, a record low September total.

October was a dry month. The drought continued in the Southeast and Central Plains, with a few stations recording no precipitation the entire month. Only portions of the Southwest, the Rio Grande Valley, the upper Ohio Valley, and northern New York and New England had more rain than normal. The Southwest again was much warmer than normal, with warmer than usual conditions prevailing through most of the West. The eastern half of the Country remained cool from repeated incursions of cold air.

Cold and snowy weather in the Northwest prevailed in November. Lander, Wyoming and Olympia, Washington were among stations reporting record snow for the month. In contrast, except for New England, the rest of the Country enjoyed warm Indian Summer temperatures. Precipitation was heavy in most areas west of the Mississippi except Oregon and Idaho. The drought in the Southeast was mostly broken, but the Northeast had a dry

month.

December saw a great expansion of the cold weather in the Northwest to encompass most of the Country west of the Mississippi. Temperatures in Wyoming and Colorado averaged 14° below normal for the month. A severe freeze occurred early in the month in the Southwest with a 31° recorded as far south as Brownsville, Texas on the 9th and 10th. Crops, especially citrus, were damaged. The East remained warmer than normal, but not notably so. Precipitation was heavy in the Ohio Valley and the Intermountain Region in the West. It was deficient in the Pacific Northwest, where normally heavy winter precipitation is beginning. The Southern Plains were also dry. The month ended with extremely cold air invading the Great Plains and much of the Midwest, presaging the third consecutive notably severe winter in a large part of the United States.



## 1.

- 3 -







### MAXIMUM SHORT DURATION PRECIPITATION



YEAR 1970

		Maximum precipitation in inches (5 to 180 minutes)											
		5	16	20	30	45	60	80	100	120	150	180	
JANUARY SPRINGS, COLORADO													
YEAR	T	.01	.01	.01	.02	.02	.03	.03	.04	.04	.04	.05	
DATE	T	10	16	16	16	16	10	13	16	16	18	18	
TIME		0010	0010	0010	0010	0059	0112	0132	0147	0200	0200	0200	
FFS	T	.01	.01	.02	.02	.02	.03	.03	.03	.04	.04	.06	
DATE	T	12	17	17	17	17	12	17	17	17	17	18	
TIME		1200	0205	0211	0230	0245	0305	0305	0325	0345	0415	0445	
MAR	.06	.12	.14	.15	.15	.16	.17	.17	.17	.17	.17	.18	
DATE	.06	06	06	06	06	06	06	06	06	06	06	06	
TIME	1436	1444	1445	1450	1455	1508	1515	1515	1515	1515	1515	1515	
APR	.04	.05	.06	.07	.08	.13	.15	.18	.25	.29	.36	.40	
DATE	.04	25	28	29	29	29	29	30	30	30	30	30	
TIME	7035	2040	2045	2205	2211	0930	0935	1027	1045	1115	1115	1110	
MAY	.04	.07	.08	.10	.12	.17	.23	.27	.32	.35	.41	.45	
DATE	.04	21	21	21	25	05	05	05	05	05	05	09	
TIME	1205	1208	1211	1615	1829	1848	1905	1901	1900	1952	1958	1958	
JUN	.10	.12	.12	.13	.15	.16	.17	.20	.21	.21	.22	.27	
DATE	.10	25	29	29	29	29	29	29	29	29	29	30	
TIME	1533	1554	1552	1937	1907	1828	1645	1605	1625	1645	1715	1745	
JUL	.27	.48	.48	.50	.73	.76	.83	.94	1.02	1.06	1.06	1.06	
DATE	.09	09	09	09	09	09	09	09	09	09	09	09	
TIME	1500	1511	1515	1522	1515	1513	1545	1605	1625	1646	1646	1646	
AUG	.18	.33	.40	.47	.61	.83	.90	1.16	1.26	1.28	1.48	1.28	
DATE	.18	24	28	28	28	28	28	28	28	28	28	28	
TIME	2108	2110	2115	2118	2126	2141	2176	2218	2228	2258	2258	2358	
SEP	.01	.04	.04	.01	.21	.21	.24	.24	.24	.24	.24	.24	
DATE	.24	24	24	24	24	24	24	24	24	24	24	24	
TIME	1900	1900	1900	1900	1919	1915	1900	1950	2010	2010	2010	2010	
OCT	.02	.03	.04	.05	.08	.10	.13	.15	.18	.20	.24	.22	
DATE	.21	21	21	21	21	21	21	21	21	21	27	22	
TIME	1802	1825	1830	1835	1845	1854	1900	1900	1900	1915	1910	1910	
NOV	.02	.03	.03	.04	.05	.08	.10	.12	.14	.17	.21	.24	
DATE	.04	04	04	04	04	04	04	04	04	04	04	04	
TIME	0340	0340	0340	0347	0340	0393	0340	0340	0340	0430	0500	0520	
DEC	.01	.01	.02	.02	.03	.04	.04	.04	.04	.04	.07	.06	
DATE	.01	01	06	06	06	06	06	06	06	06	06	06	
TIME	7018	2058	1943	1945	2201	2211	2203	2219	2240	2257	2235	2232	
YEAR	.27	.40	.48	.59	.73	.80	.90	1.16	1.26	1.28	1.78	1.28	

FUBFBL, CLKORDAD												
JAN	01	04	02	05	03	04	05	05	05	06	06	
NATE	23	19	23	23	23	23	23	23	23	23	23	
DATE	2100	2105	2110	2115	2120	2125	2130	2135	2140	2145	2150	
FEB	01	02	02	02	03	03	03	04	05	05	06	
NATE	12	12	12	12	12	12	12	12	12	12	12	
DATE	0435	0440	0445	0450	0455	0460	0465	0470	0475	0480	0485	
MAR	03	03	03	04	04	04	05	05	05	06	06	
NATE	05	05	05	06	06	06	06	07	07	08	08	
DATE	1923	1928	1933	1938	1943	1948	1953	1958	2003	2008	2013	
APR	02	03	04	04	05	05	05	06	06	07	07	
NATE	03	03	03	03	04	04	04	04	05	05	05	
DATE	0835	0835	0835	0840	0840	0840	0845	0850	0855	0860	0865	
MAY	00	11	12	14	16	24	24	24	32	37	41	
NATE	27	27	27	27	28	28	28	28	28	28	28	
DATE	7250	7255	7300	7305	7310	7315	7320	7325	7330	7335	7340	
JUN	26	40	50	55	54	55	55	55	55	55	55	
NATE	04	04	04	04	04	04	04	04	04	04	04	
DATE	1033	1038	1043	1048	1053	1058	1063	1068	1073	1078	1083	
JUL	26	32	33	38	37	38	44	44	44	44	44	
NATE	10	10	10	10	10	10	10	10	10	10	10	
DATE	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	
AUG	24	33	44	34	35	31	34	39	39	39	39	
NATE	28	28	28	28	28	28	28	28	28	28	28	
DATE	2307	2312	2317	2322	2327	2332	2337	2342	2347	2352	2357	
SEP	02	02	02	02	04	05	05	05	08	08	08	
NATE	24	24	24	24	24	24	24	24	24	24	24	
DATE	1912	1917	1922	1927	1932	1937	1942	1947	1952	1957	2002	
OCT	02	02	04	05	06	10	12	12	12	12	12	
NATE	05	05	05	05	05	05	05	05	05	05	05	
DATE	0548	0548	0553	0558	0603	0608	0613	0618	0623	0628	0633	
NOV	04	05	06	06	06	10	12	12	12	12	12	
NATE	25	25	25	25	25	25	25	25	25	25	25	
DATE	0443	0448	0453	0458	0463	0468	0473	0478	0483	0488	0493	
DEC	01	02	03	03	04	04	05	08	08	08	08	
NATE	02	02	02	02	02	02	02	02	02	02	02	
DATE	0755	0755	0760	0765	0770	0775	0780	0785	0790	0795	0800	
YEAR	26	40	50	54	53	51	54	59	59	99	99	

WILMINGTON, DELAWARE																																																																																																																																																																																	
JAN	DATE	09	14	19	24	29	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																																																											
	TIME	0158	0200	0205	0209	0214	0216	0220	0225	0230	0240	0245	0250	0255	0300	0305	0310	0315	0320	0325	0330	0335	0340	0345	0350	0355	0400	0405	0410	0415	0420	0425	0430	0435	0440	0445	0450	0455																																																																																																																																											
FEB	DATE	02	04	05	06	08	09	11	14	16	18	22	26	27	28	29	30	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																																																																																																																																		
	TIME	0003	0008	0012	0017	0021	0025	0030	0035	0040	0045	0050	0055	0100	0105	0110	0115	0120	0125	0130	0135	0140	0145	0150	0155	0200	0205	0210	0215	0220	0225	0230	0235	0240	0245	0250	0255	0300	0305	0310	0315	0320	0325	0330	0335	0340	0345	0350	0355	0400	0405	0410	0415	0420	0425	0430	0435	0440	0445	0450	0455																																																																																																																				
MAR	DATE	25	26	27	28	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																											
	TIME	1445	1449	1454	1459	1505	1511	1518	1524	1530	1535	1540	1545	1550	1555	1600	1605	1610	1615	1620	1625	1630	1635	1640	1645	1650	1655	1700	1705	1710	1715	1720	1725	1730	1735	1740	1745	1750	1755	1800	1805	1810	1815	1820	1825	1830	1835	1840	1845	1850	1855	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2100	2105	2110	2115	2120	2125	2130	2135	2140	2145	2150	2155	2200	2205	2210	2215	2220	2225	2230	2235	2240	2245	2250	2255	2300	2305	2310	2315	2320	2325	2330	2335	2340	2345	2350	2355	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2500	2505	2510	2515	2520	2525	2530	2535	2540	2545	2550	2555	2600	2605	2610	2615	2620	2625	2630	2635	2640	2645	2650	2655	2700	2705	2710	2715	2720	2725	2730	2735	2740	2745	2750	2755	2800	2805	2810	2815	2820	2825	2830	2835	2840	2845	2850	2855	2900	2905	2910	2915	2920	2



100

[illegible]



## \*E46 127c

- 10 -



### MAXIMUM SHORT DURATION PRECIPITATION



## YEAR 1978

- 12 -



1990-2000 年 10 月 31 日

13



## YEAR 1978

- 14 -



19



## YEAR 197

- 18 -



### MAXIMUM SHORT DURATION PRECIPITATION

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

[illegible][illegible]

Maximum precipitation in inches												
	5	10	15	20	25	30	35	40	45	50	55	60
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28	35	42	49	56	63	70	77
TIME	0145	0430	0715	1000	1245	1530	1815	2100	2345	2630	2915	3200
DATE	1	7	14	21	28</							

[illegible]

TABLE 1												
CUMULATIVE PERCENTAGE OF PLANTS WITH SPECIFIED NUMBER OF SPECIES												
	1	2	3	4	5	6	7	8	9	10	11	12
1959	100	100	100	100	100	100	100	100	100	100	100	100
1960	100	100	100	100	100	100	100	100	100	100	100	100
1961	100	100	100	100	100	100	100	100	100	100	100	100
1962	100	100	100	100	100	100	100	100	100	100	100	100
1963	100	100	100	100	100	100	100	100	100	100	100	100
1964	100	100	100	100	100	100	100	100	100	100	100	100
1965	100	100	100	100	100	100	100	100	100	100	100	100
1966	100	100	100	100	100	100	100	100	100	100	100	100
1967	100	100	100	100	100	100	100	100	100	100	100	100
1968	100	100	100	100	100	100	100	100	100	100	100	100
1969	100	100	100	100	100	100	100	100	100	100	100	100
1970	100	100	100	100	100	100	100	100	100	100	100	100
1971	100	100	100	100	100	100	100	100	100	100	100	100
1972	100	100	100	100	100	100	100	100	100	100	100	100
1973	100	100	100	100	100	100	100	100	100	100	100	100
1974	100	100	100	100	100	100	100	100	100	100	100	100
1975	100	100	100	100	100	100	100	100	100	100	100	100
1976	100	100	100	100	100	100	100	100	100	100	100	100
1977	100	100	100	100	100	100	100	100	100	100	100	100
1978	100	100	100	100	100	100	100	100	100	100	100	100
1979	100	100	100	100	100	100	100	100	100	100	100	100
1980	100	100	100	100	100	100	100	100	100	100	100	100
1981	100	100	100	100	100	100	100	100	100	100	100	100
1982	100	100	100	100	100	100	100	100	100	100	100	100
1983	100	100	100	100	100	100	100	100	100	100	100	100
1984	100	100	100	100	100	100	100	100	100	100	100	100
1985	100	100	100	100	100	100	100	100	100	100	100	100
1986	100	100	100	100	100	100	100	100	100	100	100	100
1987	100	100	100	100	100	100	100	100	100	100	100	100
1988	100	100	100	100	100	100	100	100	100	100	100	100
1989	100	100	100	100	100	100	100	100	100	100	100	100
1990	100	100	100	100	100	100	100	100	100	100	100	100

[illegible]



## YEAR 1978

[illegible]

		LAS VEGAS, NEVADA											
20	JAN	.03	.05	.07	.08	.12	.14	.14	.15	.14			
0715	NATE	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
20	TIME	1815	1820	1820	1823	1833	1833	1833	1833	1833	1833	1833	1833
10	FEB	.07	.11	.14	.14	.18	.22	.25	.30	.37	.45		
1000	NATE	13	13	13	13	13	13	13	13	13	13	13	13
20	TIME	1806	1903	1903	1909	1910	1931	1946	2000	2026	2039		
2310	MAR	.07	.09	.11	.14	.17	.22	.32	.39	.43	.44		
20	NATE	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
20	TIME	1728	1728	1728	1728	1728	1743	1743	1759	1820	1870		
39	APR	.02	.03	.04	.04	.04	.04	.09	.11	.11	.11		
1150	NATE	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09
20	TIME	0108	0108	0110	0115	0118	0121	0126	0131	0130	0130		
20	MAY	.04	.07	.09	.10	.12	.15	.16	.16	.17	.18		
2030	NATE	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
20	TIME	0222	0224	0225	0226	0226	0234	0247	0247	0247	0247		
T	JUN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		
20	TIME												
28	JUL	.05	.10	.10	.11	.12	.12	.14	.14	.14	.14		
1/25	NATE	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28
20	TIME	1415	1420	1425	1433	1440	1455	1510	1515	1520	1527	1535	1535
1755	AUG	.10	.27	.38	.43	.45	.45	.46	.46	.46	.46		
20	NATE	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06
20	TIME	2013	2013	2017	2024	2028	2038	2058	2058	2058	2058	2058	2058
0430	SEP	.01	.01	.01	.01	.01	.02	.02	.02	.02	.02	.02	.02
20	NATE	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	TIME	1320	1320	1326	1326	1326	1330	1335	1401	1430	1450	.55	.55
20	OCT	.09	.18	.18	.20	.22	.22	.23	.25	.26	.27		
7/28	NATE	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
20	TIME	0628	0628	0628	0632	0638	0658	0658	0658	0658	0658		
20	NOV	.02	.03	.05	.05	.07	.10	.13	.13	.14	.14		
110	NATE	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24
20	TIME	1542	1542	1546	1546	1547	1616	1622	1628	1628	1628	1628	1628
110	DEC	.03	.05	.08	.14	.18	.22	.24	.24	.24	.24	.24	.24
1/13	NATE	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
20	TIME	0357	2000	2001	2001	2004	2019	2033	2027	2040	2027	2020	2020



# MAXIMUM SHORT DURATION PRECIPITATION

Maximum precipitation in inches in 10 minutes													Maximum precipitation in inches in 10 minutes													Maximum precipitation in inches in 10 minutes												
WIND	5	10	15	20	30	45	60	90	120	150	180	240	5	10	15	20	30	45	60	90	120	150	180	240	5	10	15	20	30	45	60	90	120	150	180	240		
NEVADA																																						
JAN	10.8	15.1	19.4	23.7	28.0	32.3	36.6	40.9	45.2	49.5	53.8	58.1	10.8	15.1	19.4	23.7	28.0	32.3	36.6	40.9	45.2	49.5	53.8	58.1	10.8	15.1	19.4	23.7	28.0	32.3	36.6	40.9	45.2	49.5	53.8	58.1		
FEB	11.3	15.6	19.9	24.2	28.5	32.8	37.1	41.4	45.7	50.0	54.3	58.6	11.3	15.6	19.9	24.2	28.5	32.8	37.1	41.4	45.7	50.0	54.3	58.6	11.3	15.6	19.9	24.2	28.5	32.8	37.1	41.4	45.7	50.0	54.3	58.6		
MAR	11.8	16.1	20.4	24.7	29.0	33.3	37.6	41.9	46.2	50.5	54.8	59.1	11.8	16.1	20.4	24.7	29.0	33.3	37.6	41.9	46.2	50.5	54.8	59.1	11.8	16.1	20.4	24.7	29.0	33.3	37.6	41.9	46.2	50.5	54.8	59.1		
APR	12.3	16.6	20.9	25.2	29.5	33.8	38.1	42.4	46.7	51.0	55.3	59.6	12.3	16.6	20.9	25.2	29.5	33.8	38.1	42.4	46.7	51.0	55.3	59.6	12.3	16.6	20.9	25.2	29.5	33.8	38.1	42.4	46.7	51.0	55.3	59.6		
MAY	12.8	17.1	21.4	25.7	30.0	34.3	38.6	42.9	47.2	51.5	55.8	60.1	12.8	17.1	21.4	25.7	30.0	34.3	38.6	42.9	47.2	51.5	55.8	60.1	12.8	17.1	21.4	25.7	30.0	34.3	38.6	42.9	47.2	51.5	55.8	60.1		
JUN	13.3	17.6	21.9	26.2	30.5	34.8	39.1	43.4	47.7	52.0	56.3	60.6	13.3	17.6	21.9	26.2	30.5	34.8	39.1	43.4	47.7	52.0	56.3	60.6	13.3	17.6	21.9	26.2	30.5	34.8	39.1	43.4	47.7	52.0	56.3	60.6		
JUL	13.8	18.1	22.4	26.7	31.0	35.3	39.6	43.9	48.2	52.5	56.8	61.1	13.8	18.1	22.4	26.7	31.0	35.3	39.6	43.9	48.2	52.5	56.8	61.1	13.8	18.1	22.4	26.7	31.0	35.3	39.6	43.9	48.2	52.5	56.8	61.1		
AUG	14.3	18.6	22.9	27.2	31.5	35.8	40.1	44.4	48.7	53.0	57.3	61.6	14.3	18.6	22.9	27.2	31.5	35.8	40.1	44.4	48.7	53.0	57.3	61.6	14.3	18.6	22.9	27.2	31.5	35.8	40.1	44.4	48.7	53.0	57.3	61.6		
SEP	14.8	19.1	23.4	27.7	32.0	36.3	40.6	44.9	49.2	53.5	57.8	62.1	14.8	19.1	23.4	27.7	32.0	36.3	40.6	44.9	49.2	53.5	57.8	62.1	14.8	19.1	23.4	27.7	32.0	36.3	40.6	44.9	49.2	53.5	57.8	62.1		
OCT	15.3	19.6	23.9	28.2	32.5	36.8	41.1	45.4	49.7	54.0	58.3	62.6	15.3	19.6	23.9	28.2	32.5	36.8	41.1	45.4	49.7	54.0	58.3	62.6	15.3	19.6	23.9	28.2	32.5	36.8	41.1	45.4	49.7	54.0	58.3	62.6		
NOV	15.8	20.1	24.4	28.7	33.0	37.3	41.6	45.9	50.2	54.5	58.8	63.1	15.8	20.1	24.4	28.7	33.0	37.3	41.6	45.9	50.2	54.5	58.8	63.1	15.8	20.1	24.4	28.7	33.0	37.3	41.6	45.9	50.2	54.5	58.8	63.1		
DEC	16.3	20.6	24.9	29.2	33.5	37.8	42.1	46.4	50.7	55.0	59.3	63.6	16.3	20.6	24.9	29.2	33.5	37.8	42.1	46.4	50.7	55.0	59.3	63.6	16.3	20.6	24.9	29.2	33.5	37.8	42.1	46.4	50.7	55.0	59.3	63.6		
YEAR	16.8	21.1	25.4	29.7	34.0	38.3	42.6	46.9	51.2	55.5	59.8	64.1	16.8	21.1	25.4	29.7	34.0	38.3	42.6	46.9	51.2	55.5	59.8	64.1	16.8	21.1	25.4	29.7	34.0	38.3	42.6	46.9	51.2	55.5	59.8	64.1		
MONTH																																						
ATLANTIC CITY, NEW JERSEY																																						
JAN	12.2	16.5	20.8	25.1	29.4	33.7	38.0	42.3	46.6	50.9	55.2	59.5	12.2	16.5	20.8	25.1	29.4	33.7	38.0	42.3	46.6	50.9	55.2	59.5	12.2	16.5	20.8	25.1	29.4	33.7	38.0	42.3	46.6	50.9	55.2	59.5		
FEB	12.7	17.0	21.3	25.6	29.9	34.2	38.5	42.8	47.1	51.4	55.7	60.0	12.7	17.0	21.3	25.6	29.9	34.2	38.5	42.8	47.1	51.4	55.7	60.0	12.7	17.0	21.3	25.6	29.9	34.2	38.5	42.8	47.1	51.4	55.7	60.0		
MAR	13.2	17.5	21.8	26.1	30.4	34.7	39.0	43.3	47.6	51.9	56.2	60.5	13.2	17.5	21.8	26.1	30.4	34.7	39.0	43.3	47.6	51.9	56.2	60.5	13.2	17.5	21.8	26.1	30.4	34.7	39.0	43.3	47.6	51.9	56.2	60.5		
APR	13.7	18.0	22.3	26.6	30.9	35.2	39.5	43.8	48.1	52.4	56.7	61.0	13.7	18.0	22.3	26.6	30.9	35.2	39.5	43.8	48.1	52.4	56.7	61.0	13.7	18.0	22.3	26.6	30.9	35.2	39.5	43.8	48.1	52.4	56.7	61.0		
MAY	14.2	18.5	22.8	27.1	31.4	35.7	40.0	44.3	48.6	52.9	57.2	61.5	14.2	18.5	22.8	27.1	31.4	35.7	40.0	44.3	48.6	52.9	57.2	61.5	14.2	18.5	22.8	27.1	31.4	35.7	40.0	44.3	48.6	52.9	57.2	61.5		
JUN	14.7	19.0	23.3	27.6	31.9	36.2	40.5	44.8	49.1	53.4	57.7	62.0	14.7	19.0	23.3	27.6	31.9	36.2	40.5	44.8	49.1	53.4	57.7	62.0	14.7	19.0	23.3	27.6	31.9	36.2	40.5	44.8	49.1	53.4	57.7	62.0		
JUL	15.2	19.5	23.8	28.1	32.4	36.7	41.0	45.3	49.6	53.9	58.2	62.5	15.2	19.5	23.8	28.1	32.4	36.7	41.0	45.3	49.6	53.9	58.2	62.5	15.2	19.5	23.8	28.1	32.4	36.7	41.0	45.3	49.6	53.9	58.2	62.5		
AUG	15.7	20.0	24.3	28.6	32.9	37.2	41.5	45.8	50.1	54.4	58.7	63.0	15.7	20.0	24.3	28.6	32.9	37.2	41.5	45.8	50.1	54.4	58.7	63.0	15.7	20.0	24.3	28.6	32.9	37.2	41.5	45.8	50.1	54.4	58.7	63.0		
SEP	16.2	20.5	24.8	29.1	33.4	37.7	42.0	46.3	50.6	54.9	59.2	63.5	16.2	20.5	24.8	29.1	33.4	37.7	42.0	46.3	50.6	54.9	59.2	63.5	16.2	20.5	24.8	29.1	33.4	37.7	42.0	46.3	50.6	54.9	59.2	63.5		
OCT	16.7	21.0	25.3	29.6	33.9	38.2	42.5	46.8	51.1	55.4	59.7	64.0	16.7	21.0	25.3	29.6	33.9	38.2	42.5	46.8	51.1	55.4	59.7	64.0	16.7	21.0	25.3	29.6	33.9	38.2	42.5	46.8	51.1	55.4	59.7	64.0		
NOV	17.2	21.5	25.8	30.1	34.4	38.7	43.0	47.3	51.6	55.9	60.2	64.5	17.2	21.5	25.8	30.1	34.4	38.7	43.0	47.3	51.6	55.9	60.2	64.5	17.2	21.5	25.8	30.1	34.4	38.7	43.0	47.3	51.6	55.9	60.2	64.5		
DEC	17.7	22.0	26.3	30.6	34.9	39.2	43.5	47.8	52.1	56.4	60.7	65.0	17.7	22.0	26.3	30.6	34.9	39.2	43.5	47.8	52.1	56.4	60.7	65.0	17.7	22.0	26.3	30.6	34.9	39.2	43.5	47.8	52.1	56.4	60.7	65.0		
YEAR	18.2	22.5	26.8	31.1	35.4	39.7	44.0	48.3	52.6	56.9	61.2	65.5	18.2	22.5	26.8	31.1	35.4	39.7	44.0	48.3	52.6	56.9	61.2	65.5	18.2	22.5	26.8	31.1	35.4	39.7	44.0	48.3	52.6	56.9	61.2	65.5		
MONTH																																						
ALBUQUERQUE, NEW MEXICO																																						
JAN	10.5	14.8	19.1	23.4	27.7	32.0	36.3	40.6	44.9	49.2	53.5	57.8	10.5	14.8	19.1	23.4	27.7	32.0	36.3	40.6	44.9	49.2	53.5	57.8	10.5	14.8	19.1	23.4	27.7	32.0	36.3	40.6	44.9	49.2	53.5	57.8		
FEB	11.0	15.3	19.6	23.9	28.2	32.5	36.8	41.1	45.4	49.7	54.0	58.3	11.0	15.3	19.6	23.9	28.2	32.5	36.8	41.1	45.4	49.7	54.0	58.3	11.0	15.3	19.6	23.9	28.2	32.5	36.8	41.1	45.4	49.7	54.0	58.3		
MAR	11.5	15.8	20.1	24.4	28.7	33.0																																



## YEAR 1978

• 30 •



### MAXIMUM SHORT DURATION PRECIPITATION

[illegible]



### MAXIMUM SHORT DURATION PRECIPITATION

YEAR 19

[illegible]

VEXA	.50	.91	1.12	1.2	1.2	1.28	1.28	1.28	1.28	1.28	1.28	1
MAY 76	JB	AB	DA	DB	CA	E	B	CB	JA	CP	JG	

°N	10	10	07	08	11	12	15	22	26	27	26
°E	27	17	17	17	17	17	17	27	17	17	17
Time	1744	1744	1743	1750	175	1714	1703	1745	1750	18 0	1801
°N	1	1	1	1	1	1	1	1	1	1	1
°E	1	1	1	1	1	1	1	1	1	1	1
Time	1654	1642	1641	1641	1649	174	176	17 0	1749	1745	
°N	05	04	07	11	13	13	24	23	26	33	34
°E	14	14	14	14	14	14	14	14	14	14	14
Time	1801	0155	0154	02 06	0158	0155	0156	0111	0130	0158	0215
°N	06	18	23	24	24	25	23	23	27	25	26
°E	18	18	18	17	17	17	17	17	17	17	17
Time	30 2	30 7	30 4	30 4	30 2	30 4	30 1	30 1	30 3	30 8	30 4
°N	07	12	17	19	23	23	23	23	27	40	40
°E	12	12	13	13	13	13	13	13	13	13	13
Time	3340	3350	3350	34 01	34 25	34 25	33 30	33 00	33 40	33 40	33 40
°N	23	33	33	33	33	33	33	33	33	33	33
°E	18	18	18	16	16	16	16	16	16	16	16
Time	17 55	17 50	17 55	17 55	17 53	17 52	17 55	18 00	18 00	18 00	18 00
°N	38	42	48	74	74	74	75	139	139	142	142
°E	18	18	18	18	18	18	18	18	18	18	18
Time	16 05	16 55	16 55	16 59	16 59	16 49	16 30	16 05	16 45	16 45	16 45
°N											
°E											
Time											
°N	05	05	06	06	06	11	11	11	16	17	17
°E	15	15	16	15	15	16	30	36	16	16	16
Time	03 55	04 01	04 02	04 07	04 06	03 55	04 08	03 54	04 04	04 04	04 04
°N											
°E											
Time											
°N	08	08	13	14	14	22	26	26	40	40	40
°E	17	17	17	17	17	17	17	17	17	17	17
Time	13 05	13 11	13 11	13 11	13 15	13 33	13 43	03 48	06 10	06 10	06 10
°N	38	41	42	45	45	45	45	45	45	45	45
°E	18	18	18	18	18	18	18	18	18	18	18
Time	21 50	21 50	21 59	21 55	21 55	21 53	21 52	22 02	22 12	22 12	22 12

[illegible][illegible]

YEAR	.34	.47 <sup>a</sup>	.59	.59	.71	.86	.98	1.07	1.10	1.39	1.45	1.0
MONTH	.09	.17	.07	.17	.17	.17	.17	.07	.17	.17	.17	.0

		Maximum precipitation in inches (5 to 180 minutes)											
		5	10	15	20	30	45	60	80	100	120	150	180
FLEVLIN, OHIO													
JAN	0.04	0.07	0.07	0.08	0.08	0.12	0.13	0.14	0.15	0.18	0.21	0.22	0.26
DATE	07 07 07	07	07	07	07	07	07	07	07	07	07	07	07
TIME	7310	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
FEB	0.11	0.02	0.02	0.02	0.03	0.04	0.06	0.05	0.05	0.05	0.05	0.05	0.06
DATE	13 13 13	13	13	13	13	13	13	13	13	13	13	13	13
TIME	1842	1842	1842	1842	1842	1842	1842	1842	1842	1842	1842	1842	1842
MAR	0.04	0.06	0.08	0.12	0.16	0.11	0.27	0.35	0.40	0.45	0.46	0.47	0.47
DATE	14 14 14	14	14	14	14	14	14	14	14	14	14	14	14
TIME	0208	0210	0245	0305	0236	0236	0324	0324	0344	0344	0344	0344	0344
APR	0.00	0.00	0.00	0.13	0.14	0.15	0.15	0.16	0.24	0.25	0.26	0.28	0.30
DATE	04 04 04	04	04	04	04	04	04	04	04	04	04	04	04
TIME	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040
MAY	0.15	0.32	0.34	0.34	0.35	0.41	0.43	0.43	0.43	0.43	0.43	0.43	0.43
DATE	15 15 15	15	15	15	15	15	15	15	15	15	15	15	15
TIME	0715	0710	0715	0724	0733	0735	0800	0800	0800	0800	0800	0800	0800
JUN	0.02	0.05	0.08	0.73	0.77	0.81	0.85	0.91	1.05	1.12	1.20	1.21	1.21
DATE	05 25 24	24	24	25	25	25	25	25	26	26	26	26	26
TIME	7312	7311	7323	2327	2333	2352	0007	0007	0007	0107	0107	0127	0127
JUL	0.20	0.30	0.32	0.28	0.43	0.56	0.61	0.67	0.72	0.74	0.75	0.76	0.76
DATE	11 11 11	11	11	11	11	11	11	11	11	11	11	11	11
TIME	1302	1302	1302	1307	1310	1330	1345	1401	1425	1445	1511	1545	1545
AUG	0.02	0.03	0.07	0.04	0.07	0.13	0.13	0.17	0.17	0.17	0.17	0.15	0.15
DATE	08 29 09	09	09	09	09	09	09	09	09	09	09	09	09
TIME	2109	2112	2115	2127	2134	2145	2158	2218	2238	2258	2328	2328	2328
SEP	0.23	0.38	0.40	0.54	0.67	0.74	0.75	0.78	0.80	0.80	0.80	0.80	0.89
DATE	12 12 12	12	12	12	12	12	12	12	12	12	12	12	12
TIME	0618	0604	0609	0654	07 07	0718	0733	0741	0811	0834	0854	0911	0911
OCT	0.12	0.17	0.20	0.24	0.26	0.30	0.36	0.52	0.57	0.67	0.70	0.70	0.70
DATE	15 15 15	15	15	15	15	15	15	15	15	15	15	15	15
TIME	0515	0415	0415	0416	0416	0416	0416	0416	0520	0520	0520	0520	0520
NOV	0.33	0.35	0.07	0.07	0.07	0.09	0.11	0.12	0.18	0.21	0.21	0.21	0.21
DATE	17 17 17	17	17	17	17	17	17	17	17	17	17	17	17
TIME	1035	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040
DEC	0.04	0.03	0.08	0.09	0.13	0.19	0.25	0.30	0.32	0.38	0.40	0.43	0.43
DATE	08 08 08	08	08	08	08	08	08	08	08	08	08	08	08
TIME	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800	0800

[illegible]

JAN	74	67	69	11	14	17	22	24	30	36	42	48
NATE	8	16	24	72	10	13	18	26	46	66	72	78
TIME	115	0119	0112	1212	0113	0145	0201	0230	0245	0315	0317	0315
FEB	11	11	12	12	12	13	13	13	13	13	13	13
NATE	13	13	13	13	13	13	13	13	13	13	13	13
TIME	1535	1544	1545	1545	1611	1615	1618	1631	1710	1730	1805	1830
MAR	1	15	17	17	17	17	17	17	17	17	17	17
NATE	16	16	16	16	16	16	16	16	16	16	16	16
TIME	0250	0250	1250	0250	0225	0225	0250	0250	0310	0315	0345	0415
APR	18	12	17	22	23	24	29	44	47	54	76	85
NATE	20	20	20	20	20	20	20	20	20	20	20	20
TIME	2035	2035	2225	2335	2335	2424	2505	2525	2345	2350	2320	2320
MAY	12	22	24	27	27	28	28	28	28	28	28	28
NATE	24	24	24	24	24	24	24	24	24	24	24	24
TIME	0025	0030	0035	0040	0031	0040	0100	0100	0100	0100	0100	0100
JUN	H	H	H	H	H	H	H	H	H	H	H	H
NATE	H	H	H	H	H	H	H	H	H	H	H	H
TIME	H	H	H	H	H	H	H	H	H	H	H	H
JUL	08	11	18	11	17	21	24	35	35	35	36	36
NATE	21	23	23	23	23	23	23	23	23	23	23	23
TIME	1335	1340	1345	1347	1347	1427	1445	1445	1445	1445	1547	1617
AUG	12	19	23	24	24	24	24	24	24	24	24	24
NATE	03	03	03	03	03	03	03	03	03	03	03	03
TIME	0200	0215	0225	0247	0251	0245	0300	0325	0340	0345	0415	0455
SEP	15	19	20	21	21	23	24	25	26	27	34	36
NATE	30	30	30	30	30	30	30	30	30	30	30	30
TIME	1450	1500	1505	1515	1515	1520	1535	1535	1535	1535	2005	2005
OCT	10	14	16	22	25	28	34	36	46	57	65	78
NATE	17	17	17	17	17	17	17	17	17	17	17	17
TIME	0717	0742	0825	0831	0831	0847	0700	0210	0310	0330	0330	0330
NOV	05	06	07	09	12	11	17	22	26	28	31	37
NATE	17	17	17	17	17	17	17	17	17	17	17	17
TIME	0930	0935	0940	0954	1111	1115	0900	1045	1105	1125	1155	1225
DEC	17	19	11	13	17	21	23	33	37	44	50	58
NATE	17	17	17	17	17	17	17	17	17	17	17	17
TIME	2035	2100	2105	2105	2105	2105	2125	0225	0240	0240	0300	0300

2	YEAR MONTH	.15 09	.23 05	.34 05	.47 05	.47 05	.58 05	.68 05	.79 05	.90 05	1.18 05	1.27 05	1.30 05
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[illegible]

YEAR	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382																																																																																																																																																																																																																																																	
MONTH	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06

Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	90	100	120	150	180
JANUARY, 1910												
DATE	.07	.11	.13	.14	.22	.32	.45	.52	.66	.70	.84	.92
TIME	06:04	06:28	07:25	07:54	08:25	08:58	09:25	09:58	10:25	10:58	11:25	11:58
PRECIP.	.0042	.0045	.0045	.0047	.0100	.0050	.0100	.0110	.0125	.0135	.0200	.0200
FEBRUARY, 1910												
DATE	1	.61	.91	.02	.12	.03	.04	.04	.05	.04	.07	.07
TIME	13	13	13	13	13	13	13	13	13	13	13	13
PRECIP.	.0330	.0330	.0330	.0330	.0330	.0408	.0428	.0448	.0458	.0536	.0638	.0638
MARCH, 1910												
DATE	.03	.06	.07	.08	.11	.14	.18	.21	.24	.26	.28	.33
TIME	25	25	26	29	29	29	29	29	29	29	29	26
PRECIP.	.2134	.2134	.2144	.2154	.2204	.2215	.2146	.2207	.2226	.2246	.2270	.1842
APRIL, 1910												
DATE	.18	.21	.22	.23	.24	.25	.25	.26	.34	.38	.44	.46
TIME	18	18	18	18	18	18	18	18	18	18	18	18
PRECIP.	.1905	.1915	.1915	.1917	.1911	.1911	.1925	.1924	.1915	.2100	.2130	.2200
MAY, 1910												
DATE	.23	.44	.44	.46	.47	.79	.79	.81	.80	.82	.79	.81
TIME	29	29	29	29	29	29	29	29	29	29	29	29
PRECIP.	.1425	.1430	.1430	.1433	.1440	.1450	.1510	.1513	.1535	.1535	.1535	.1535
JUNE, 1910												
DATE	.28	.46	.46	.46	.48	.55	.60	.66	.76	.77	.77	.80
TIME	18	18	18	18	18	18	18	18	18	18	18	18
PRECIP.	.7028	.7028	.7028	.7038	.7048	.7100	.7200	.7045	.7125	.7120	.7155	.7310
JULY, 1910												
DATE	.28	.28	.40	.33	.35	.37	.37	.38	.38	.39	.40	.42
TIME	23	23	23	23	23	23	23	23	23	23	23	23
PRECIP.	.1014	.1014	.1020	.1020	.1024	.1033	.1033	.1046	.1073	.1078	.1074	.1084
AUGUST, 1910												
DATE	.26	.30	.32	.33	.39	.42	.46	.55	.60	.65	.65	.60
TIME	28	28	28	28	28	28	28	28	28	28	28	28
PRECIP.	.1050	.1034	.1050	.1050	.1051	.1060	.1050	.1060	.1050	.1050	.1050	.1050
SEPTEMBER, 1910												
DATE	.18	.30	.34	.35	.46	.46	.51	.54	.54	.54	.57	.67
TIME	03	03	03	03	03	03	03	03	03	03	03	03
PRECIP.	.1532	.1552	.1550	.1550	.1550	.1550	.1550	.1630	.1630	.1630	.1740	.1810
OCTOBER, 1910												
DATE	.08	.11	.14	.14	.25	.32	.35	.39	.38	.39	.40	.42
TIME	13	13	13	13	13	13	13	13	13	13	13	13
PRECIP.	.0311	.0317	.0325	.0340	.0333	.0333	.0350	.0417	.0430	.0450	.0520	.0550
NOVEMBER, 1910												
DATE	.04	.05	.05	.05	.09	.11	.13	.14	.15	.16	.19	.24
TIME	17	17	17	17	17	17	17	17	17	17	17	01
PRECIP.	.0515	.1145	.1145	.0135	.0135	.1515	.1502	.0870	.0870	.1040	.0830	.1200
DECEMBER, 1910												
DATE	.07	.14	.19	.18	.22	.25	.28	.33	.45	.55	.61	.61
TIME	09	09	09	09	09	09	09	09	09	09	09	09
PRECIP.	.1920	.1925	.1930	.1930	.1931	.2010	.2200	.2210	.2335	.2255	.2390	.2390

YEAR	.28	.41	.44	.60	.70	.79	.79	.87	.80	.90	.94	.92
MONTH	06	05	09	05	06	05	05	05	05	05	01	01

[illegible]

YEAR	.22	.40	.48	.56	.64	.71	.81	.89	.94	1.34	1.69	1.75
MONTH	05	06	08	06	06	06	06	06	0A	06	0A	06

[illegible]

YEAR	.52	.74	.94	1.15	1.19	1.63	2.08	2.34	2.57	2.62	2.62	2.62
MONTH	06	06	06	05	06	04	04	04	04	04	04	04



### MAXIMUM SHORT DURATION PRECIPITATION



### MAXIMUM SHORT DURATION PRECIPITATION

YEAR 1970

[illegible]



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## YEAR 1978

Maximum precipitation in inches 5 to 180 minutes													
		5	10	15	20	30	45	60	80	100	120	150	180
JANUARY													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30	31								
PRECIP.	.00	.00	.00	.00	.00								
FEBRUARY													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30									
PRECIP.	.00	.00	.00	.00									
MARCH													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30	31								
PRECIP.	.00	.00	.00	.00	.00								
APRIL													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30									
PRECIP.	.00	.00	.00	.00									
MAY													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30	31								
PRECIP.	.00	.00	.00	.00	.00								
JUNE													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30									
PRECIP.	.00	.00	.00	.00									
JULY													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30	31								
PRECIP.	.00	.00	.00	.00	.00								
AUGUST													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30									
PRECIP.	.00	.00	.00	.00									
SEPTEMBER													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30									
PRECIP.	.00	.00	.00	.00									
OCTOBER													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30	31								
PRECIP.	.00	.00	.00	.00	.00								
NOVEMBER													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30									
PRECIP.	.00	.00	.00	.00									
DECEMBER													
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	14	15	16	17	18	19	20	21	22	23	24	25	26
PRECIP.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DATE	27	28	29	30	31								
PRECIP.	.00	.00	.00	.00	.00								

[illegible][illegible]



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### SHORT DURATION PRECIPITATION

[illegible]



### MAXIMUM SHORT DURATION PRECIPITATION

[A= ]

STATION	Maximum precipitation in inches (5 to 180 minutes)																STATION	Maximum precipitation in inches (5 to 180 minutes)																																																																																																																																																																																																																																																																																																																																																																																																																											
	5	10	15	20	30	45	60	90	120	150	180	5	10	15	20	30		45	60	90	120	150	180																																																																																																																																																																																																																																																																																																																																																																																																																						
STATION 1, ALABAMA	1.1	1.4	1.6	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.5	7.7	7.9	8.1	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.7	9.9	10.1	10.3	10.5	10.7	10.9	11.1	11.3	11.5	11.7	11.9	12.1	12.3	12.5	12.7	12.9	13.1	13.3	13.5	13.7	13.9	14.1	14.3	14.5	14.7	14.9	15.1	15.3	15.5	15.7	15.9	16.1	16.3	16.5	16.7	16.9	17.1	17.3	17.5	17.7	17.9	18.1	18.3	18.5	18.7	18.9	19.1	19.3	19.5	19.7	19.9	20.1	20.3	20.5	20.7	20.9	21.1	21.3	21.5	21.7	21.9	22.1	22.3	22.5	22.7	22.9	23.1	23.3	23.5	23.7	23.9	24.1	24.3	24.5	24.7	24.9	25.1	25.3	25.5	25.7	25.9	26.1	26.3	26.5	26.7	26.9	27.1	27.3	27.5	27.7	27.9	28.1	28.3	28.5	28.7	28.9	29.1	29.3	29.5	29.7	29.9	30.1	30.3	30.5	30.7	30.9	31.1	31.3	31.5	31.7	31.9	32.1	32.3	32.5	32.7	32.9	33.1	33.3	33.5	33.7	33.9	34.1	34.3	34.5	34.7	34.9	35.1	35.3	35.5	35.7	35.9	36.1	36.3	36.5	36.7	36.9	37.1	37.3	37.5	37.7	37.9	38.1	38.3	38.5	38.7	38.9	39.1	39.3	39.5	39.7	39.9	40.1	40.3	40.5	40.7	40.9	41.1	41.3	41.5	41.7	41.9	42.1	42.3	42.5	42.7	42.9	43.1	43.3	43.5	43.7	43.9	44.1	44.3	44.5	44.7	44.9	45.1	45.3	45.5	45.7	45.9	46.1	46.3	46.5	46.7	46.9	47.1	47.3	47.5	47.7	47.9	48.1	48.3	48.5	48.7	48.9	49.1	49.3	49.5	49.7	49.9	50.1	50.3	50.5	50.7	50.9	51.1	51.3	51.5	51.7	51.9	52.1	52.3	52.5	52.7	52.9	53.1	53.3	53.5	53.7	53.9	54.1	54.3	54.5	54.7	54.9	55.1	55.3	55.5	55.7	55.9	56.1	56.3	56.5	56.7	56.9	57.1	57.3	57.5	57.7	57.9	58.1	58.3	58.5	58.7	58.9	59.1	59.3	59.5	59.7	59.9	60.1	60.3	60.5	60.7	60.9	61.1	61.3	61.5	61.7	61.9	62.1	62.3	62.5	62.7	62.9	63.1	63.3	63.5	63.7	63.9	64.1	64.3	64.5	64.7	64.9	65.1	65.3	65.5	65.7	65.9	66.1	66.3	66.5	66.7	66.9	67.1	67.3	67.5	67.7	67.9	68.1	68.3	68.5	68.7	68.9	69.1	69.3	69.5	69.7	69.9	70.1	70.3	70.5	70.7	70.9	71.1	71.3	71.5	71.7	71.9	72.1	72.3	72.5	72.7	72.9	73.1	73.3	73.5	73.7	73.9	74.1	74.3	74.5	74.7	74.9	75.1	75.3	75.5	75.7	75.9	76.1	76.3	76.5	76.7	76.9	77.1	77.3	77.5	77.7	77.9	78.1	78.3	78.5	78.7	78.9	79.1	79.3	79.5	79.7	79.9	80.1	80.3	80.5	80.7	80.9	81.1	81.3	81.5	81.7	81.9	82.1	82.3	82.5	82.7	82.9	83.1	83.3	83.5	83.7	83.9	84.1	84.3	84.5	84.7	84.9	85.1	85.3	85.5	85.7	85.9	86.1	86.3	86.5	86.7	8



## YEAR 1978

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## YEAR 1970

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# SUNSHINE, AMOUNT AND PERCENT

YEAR 1978

Station		January		February		March		April		May		June		July		August		September		October		November		December		Annual	
		Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
ALABAMA BIRMINGHAM U BIRMINGHAM MONTGOMERY	139	44	180	58	194	52	261	67	246	57	294	68	308	70	292	70	204	55			193	61	176	57			48
	139	44	218	70	248	67	295	76	292	68	333	78	305	70	292	71	205	55	294	83	183	58	152	49	2956	67	
ALASKA ANCHORAGE JUNEAU NOME	61	30	82	32	196	53	251	57	328	60	293	51	290	51	246	50	161	47	62	20	58	26	26	15	2052	45	
	92	41	119	45	215	59	289	67	327	63	353	65	293	37	255	54	172	45	17	5	55	23	10	5	2106	47	
	28	17	97	41	206	56	190	42	396	69	130	21	296	48	164	32	150	38	175	58	30	26	21	16	1904	42	
ARIZONA FLAGSTAFF PHOENIX TUCSON YUMA																											
	196	62	199	65	278	75	347	89	400	93	415	97	388	89	378	91	353	95	288	82	210	67	250	81	3702	83	
	237	74	254	82	328	88	375	96	403	94	412	97	381	88	378	92	354	95	312	88	235	74	239	76	3907	88	
	221	69	245	79	296	80	372	95	417	97	426	100	421	97	397	96	353	95	310	88	249	79	227	73	3931	88	
ARKANSAS FORT SMITH NO. LITTLE ROCK	151	48	121	40	192	52	281	72	295	68	311	72	389	88	281	67	207	56	270	77	123	40	157	52	2778	62	
	203	65	195	64	262	71	325	83	353	81	372	86	402	91	360	87	308	83	317	90	210	68				74	
CALIFORNIA EUREKA U FRESNO RED BLUFF SACRAMENTO SAN DIEGO																											
	144	48	106	36	192	52	280	70	379	85	277	61	171	37	221	52	221	59	146	42	147	49	162	56	2445	55	
	89	29	131	43	259	70	287	73	427	97	434	99	439	98	414	99	338	91	342	98	211	69	151	50	3521	79	
	106	35	172	57	252	68	308	77	423	95	423	94	441	97	403	95	332	89	324	94	225	75	241	83	3649	82	
	74	24	189	63	289	78	251	63	413	93	400	90	434	96	407	96	300	80	324	82	156	52	129	44	3325	75	
	180	56	200	65	208	56	291	75	341	79	333	78	342	78	319	77	268	72	224	64	206	66	245	79	3157	71	
COLORADO DENVER GRAND JUNCTION PUEBLO																											
	207	69	219	73	310	84	308	78	291	65	302	67	331	73	308	73	310	83	258	74	167	56	211	72	3222	72	
	133	44	164	55	207	56	284	71	367	83	404	91	397	88	352	83	325	87	263	76	174	58	150	51	3220	72	
224	73	221	73	321	86	345	87	378	86	385	87	404	90	368	87	351	94	298	86	212	70	254	86	3759	84		
CONNECTICUT HARTFORD																											
	169	57	213	72	246	66	231	58	235	52	336	74	310	67	201	47	245	65	201	59	182	62	187	66	2754	62	
DIST/COLUMBIA WASHINGTON NATIONAL																											
	125	41	181	60	202	54	257	65	228	52	347	78	324	72	294	70	275	74	242	70	119	39	158	54	2753	62	
FLORIDA APPALACHICOLA U JACKSONVILLE KEY WEST LAKELAND U MIAMI TAMPA																											
	174	53	165	53	217	58	303	78	263	62	242	57	235	55	290	71	240	65	244	69	179	56	168	53	2719	61	
	172	53	164	53	237	64	324	84	285	67	249	68	307	71	320	78	264	71	232	66	185	58	193	61	2971	67	
	247	74	225	71	311	84	349	91	361	87	350	86	362	87	342	85	319	87	271	76			250	76		76	
	169	51	197	50	233	63	300	78	263	63	193	46	181	42	231	57										39	
	182	55	177	56	257	69	310	81	279	67	269	65	291	69	290	72	247	67	190	53	211	65	180	55	2882	65	
219	67	141	45	270	73	332	86	327	78	330	79	297	70	289	71	216	58	206	58	228	70	178	55	3032	68		
GEORGIA ATLANTA MACON SAVANNAH																											
	153	48	192	62	232	62	287	73	284	66	303	70	301	69	256	62	253	68	306	87	193	62	166	54	2926	66	
	149	47	178	58	261	70	306	79	298	70	316	74	355	81	272	66	165	44	262	74	167	53	176	57	2905	65	
188	59	169	55	200	54	287	74	246	57	234	55	246	57	260	63	183	49	215	61	141	45	155	50	2524	57		
HAWAII HILO HONOLULU KAMULUI LIHUE																											
	186	54	218	68	178	48	189	50	194	48	197	49	153	37	161	41	170	46	141	39	108	32	59	17	1953	44	
	232	68	238	74	256	69	248	65	262	64	284	71	299	73	282	71	310	84	274	76	224	67	146	49	3076	69	
	252	74	264	82	252	68	261	69	258	63	270	67	272	66	277	70	261	71	205	57	198	59	172	52	2945	66	
	168	49	230	72	254	68	273	72	270	66	242	60	269	65	262	66	254	69	197	55	182	55	149	44	2749	62	
IDAHO BOISE POCATELLO																											
	97	33	91	31	231	62	211	52	321	70	354	77	396	85	352	81	272	72	310	91	99	34	108	39	2839	64	
	91	31	105	36	242	65	250	62	304	67	367	80	407	88	360	84	269	72	308	90	131	45	145	51	2979	67	
ILLINOIS CAIRO U CHICAGO MIDWAY MOLINE PEORIA SPRINGFIELD																											
	154	50	78	26	155	42	262	66	229	52	362	82	349	78	258	61	331	89	282	81	156	51	155	52	2769	62	
	127	43	128	43	163	44	231	58	262	58	287	63	264	57	277	65	259	69	179	52	123	42	103	36	2403	54	
	116	39	117	39	185	50	198	49	174	39	255	56	148	32	212	50	238	64	173	50	53	31	83	29	1992	45	
	170	57	140	47	179	48	216	54	192	43	295	65	263	58	266	62	288	77	193	56	138	46	118	41	2457	55	
	160	53	136	45	171	46	213	54	221	50																	



# SUNSHINE, AMOUNT AND PERCENT

YEAR 1976

Station		January		February		March		April		May		June		July		August		September		October		November		December		Annual	
		Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
MINNESOTA																											
DULUTH	167	60	147	51	254	69	226	55	280	60	222	47	224	47	263	60	165	44	169	50	132	47	126	47	2375	53	
MINNEAPOLIS	197	69	179	61	272	73	199	49	328	71	312	67	330	70	335	77	276	73	204	60	103	36	115	42	2848	64	
MISSISSIPPI																											
JACKSON	114	36	190	61	216	58	286	74	210	49	294	69	303	70	267	65	182	49	318	90	178	57	167	53	2725	61	
MISSOURI																											
COLUMBIA REGIONAL	158	52	117	39	174	47	180	45	225	51	317	71	305	67	287	68	271	73	248	72	127	42	146	49	2554	57	
KANSAS CITY	109	36	108	36	219	59	290	73	313	70	392	88	357	79	359	85	275	74	245	71	106	35	132	45	2903	65	
ST. LOUIS	127	42	129	43	141	38	157	40	217	49	296	67	302	67	237	56	280	75	221	64	122	40	170	54	2400	55	
SPRINGFIELD	127	41	170	40	200	54	226	57	262	60	300	68	366	82	320	76	317	85	287	82	118	39	180	60	2824	63	
MONTANA																											
BILLINGS	87	31	145	50	297	80	238	59	216	47	329	70	296	62	319	73	229	61	241	71	119	42	83	31	2599	58	
GREAT FALLS	137	49	162	56	201	54	212	52	254	54																	
HAVRE	126	46	148	52	237	78	263	64	344	73	416	86	399	82	385	87	291	77	237	71	143	52	95	36	3132	70	
HELENA	97	35	125	43	229	62	218	53	197	47	332	70	329	69	315	72	222	59	247	73	79	28	110	41	2499	56	
MISSOULA	61	22	106	37	255	69	221	54	145	31	299	63	339	71	293	67	184	49	241	71	86	30	103	38	2332	52	
NEBRASKA																											
LINCOLN	135	45	121	41	254	69	162	40	208	46	348	77	323	71	348	81	284	76	266	77	131	44	144	57	2744	62	
NORTH PLATTE	146	50	132	44	260	70	242	61	323	72	359	79	383	83	324	76	311	80	291	84	148	50	178	62	3088	69	
OMAHA (NORTH)	129	43	122	41	190	51	109	27	222	49	318	70	251	55	295	69	259	69	226	66	141	47	142	49	2402	54	
VALENTINE	177	60	120	41	248	67	196	49	334	73	394	86	374	81	385	89	324	86	276	81	165	56	176	62	3168	71	
NEVADA																											
ELY	191	63	228	76	204	55	220	55	353	79	397	89	390	86	366	86	291	78	283	82	172	57	216	74	3310	74	
LAS VEGAS	169	54	208	68	298	80	318	81	388	89	419	96	417	92	397	95	345	93	293	84	236	76	244	81	3722	84	
RENO	229	76	246	82	331	86	350	88	427	96	477	95	445	98	407	96	339	91	318	92	220	73	231	79	3959	89	
WINNEVOCCA	126	42	107	36	213	57	225	56	354	79	362	87	430	94	405	95	292	78	315	91	163	55	175	61	3197	72	
NEW HAMPSHIRE																											
CONCORD	100	34	190	64	225	61	208	52	264	58	324	70	327	70	270	51	256	68	185	54	150	51	135	48	2583	58	
MT. WASHINGTON OBS.	74	25	149	50	128	34	121	30	211	45	142	30	197	41	148	34	190	50	134	39	141	48	43	15	1678	37	
NEW JERSEY																											
ATLANTIC CITY	146	55	203	67	210	57	239	60	179	40	265	59	239	53	244	58	244	65	224	65	97	32	150	51	2460	55	
TRENTON U.	139	46	212	71	207	56	180	45	162	36	280	62	207	45	165	39	220	59	214	62	126	42	161	55	2274	51	
NEW MEXICO																											
ALBUQUERQUE	168	54	188	61	248	67	336	86	319	73	373	86	353	80	343	82	297	80	294	78	158	51	167	64	3272	74	
ROSWELL	190	60	219	71	330	89	359	92	397	92	386	90	421	96			272	73	275	84	143	45	235	76		73	
NEW YORK																											
ALBANY	103	35	192	65	220	59	240	60	256	56	291	64	301	65	218	51	245	65	154	45	122	42	109	38	2450	55	
BINGHAMTON	107	37	144	49	178	48	204	51	229	51	261	57	250	54	204	47	198	53	160	47	133	45	80	28	2148	48	
BUFFALO	47	16	104	35	171	46	202	50	256	56	323	70	325	70	276	64	223	60	164	48	119	41	65	23	2274	51	
ROCHESTER	76	26	127	43	163	44	204	51	243	53	306	67	286	61	271	63	238	64	156	45	85	29	53	19	2206	49	
SYRACUSE	70	24	125	42	212	57	233	58	213	47	243	53	297	64	150	35	182	48	129	38	64	22	30	11	1856	42	
NORTH CAROLINA																											
ASHEVILLE	146	47	170	56	227	61	294	75	239	55	302	69	254	57	201	48	195	52	288	82	154	50	171	56	2641	59	
CAPE HATTERAS R.	183	59	187	55	199	54	236	60	199	46	278	64	274	62	256	61	265	71	188	54	118	38	179	59	2542	57	
CHARLOTTE	175	56	183	60	221	59	265	68	280	64	316	73	274	62	230	55	192	52	285	81	143	46	169	55	2733	61	
GREENSBORO	181	58	203	67	231	62	243	62	262	60	307	70	316	71	268	64	227	61	244	70	149	48	186	62	2815	63	
RALEIGH	194	59	213	70	239	64	242	61	246	56	362	83	367	83	340	81	263	71	239	68	107	35	159	52	2958	66	
WILMINGTON	166	53	175	57	215	58	232	59	190	44	286	66	302	69	347	84	249	78	274	78	149	48	189	62	2614	63	
NORTH DAKOTA																											
BISMARCK	188	67	140	49	311	82	126	31	288	62	360	76	371	77	322	73	271	72	201	60	118	42	129	48	2815	63	
FARGO	194	69	192	66	274	74	201	49	268	57	286	60	321	67	311	71	248	66	188	56	130	46	152	57	2766	62	
HILLSTON	167	61	168	59	238	64	201	49	264	56	342	71	382	79	372	84	258	68	205	61	103	37	136	52	2836	63	
OHIO																								</			

# SUNSHINE, AMOUNT AND PERCENT

YEAR 1978

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
SOUTH DAKOTA																										
HURON	209	73	202	69	243	66	161	40	327	71	381	82	383	82	371	86	314	83	242	71	114	39	160	58	3106	70
RAPID CITY	162	56	120	41	280	76	244	60	263	57	334	72	324	69	312	72	294	78	265	78	110	38	195	58	2901	65
TENNESSEE																										
CHATTANOOGA	129	41	149	49	187	50	243	62	229	53	260	60	309	70	211	51	199	54	267	76	153	49	166	55	2502	56
KNOXVILLE	250	64	141	46	194	52	281	71	242	56	322	74	308	69	254	61	226	61	315	90	179	58	184	61	2845	64
MEMPHIS	145	46	170	56	205	59	324	83	303	70	361	83	379	86	316	76	266	72	297	85	182	59	180	59	3129	70
NASHVILLE	138	44	154	50	150	40	213	54	236	54	286	65	288	65	233	56	228	61	243	70	132	43	146	48	2446	55
TEXAS																										
ABILENE	149	47	157	51	285	77	329	84	343	80	363	85	364	84	288	70	197	53	269	76	124	39	224	72	3092	70
AMARILLO	176	56	170	56	264	71	320	82	291	67	369	85	399	90	345	83	253	68	303	86	134	43	215	70	3237	73
AUSTIN	121	37	137	44	254	68	277	59	237	56	327	77	359	83	289	70	176	47	243	68	114	36	134	42	2616	59
BROWNSVILLE	86	26	115	37	216	58	251	60	291	70	337	82	368	87	322	80	208	56	172	48	122	37	106	32	2574	58
CORPUS CHRISTI	77	29	131	42	277	74	266	69	331	79	369	89	362	85	338	83	261	71	246	69	137	42	118	36	2931	66
EL PASO	246	77	230	74	283	76	338	87	362	85	364	85	372	86	338	82	248	67	303	86	213	67	249	79	3543	80
GALVESTON	84	26	140	45	248	67	256	66	310	73	336	80	342	80	317	78	223	60	272	77	129	40	138	43	2794	63
HOUSTON INTERCON	80	25	152	49	235	63	217	56	266	63	303	72	298	69	286	70	172	46	251	71	121	38	124	39	2505	56
LUBBOCK	153	48	178	58	293	79	349	89	311	72	336	78	361	82	303	73	194	52	280	80	126	40	184	59	3066	69
PORT ARTHUR	77	24	152	49	220	59	241	62	325	77	362	86	271	63	265	65	169	46	252	71	101	31	98	31	2535	57
SAN ANTONIO	134	41	143	46	243	65	196	51	263	62	345	82	335	78	287	70	158	43	212	60	111	35	109	34	2536	57
UTAH																										
MILFORD	140	46	144	48	213	58	247	62	337	76	400	90	393	87	377	89	325	87	289	83	150	50	186	63	3199	72
SALT LAKE CITY	114	38	138	53			236	59	338	75			408	89	351	82	290	77	300	87	127	43	108	38		55
VERMONT																										
BURLINGTON	78	27	175	60	200	54	189	47	283	62	253	54	376	65	235	54	207	55	119	35	144	50	72	26	2262	51
VIRGINIA																										
LYNCHBURG	187	61	201	66	213	57	270	68	292	66	344	78	318	71	285	68	224	60	254	73	137	45	192	64	2914	65
NORFOLK	186	60	205	68	230	62	245	62	187	43	293	67	276	62	292	70	290	78	246	70	113	37	174	58	2737	62
RICHMOND	202	66	219	72	209	56	254	64	306	69	361	82	336	75	318	76	271	73	266	76	150	49	192	64	3083	69
WASHINGTON																										
QUILLAYUTE	71	26	88	31	120	32	119	29	204	43	278	58	189	39	181	41	112	30	148	44	92	33	79	30	1679	38
SEATTLE-TAFOMA	55	20	50	17	164	44	192	47	231	49	249	52	208	43	226	51	89	24	187	55	72	26	68	26	1790	40
SPOKANE	46	16	62	21	184	50	226	55	267	57	365	76	356	74	247	56	184	49	238	71	57	21	118	45	2349	53
WALLA WALLA U	31	11	53	18	179	48	183	45	272	59	332	71	363	76	267	61	204	54	269	80	88	31	85	31	2324	52
WEST INDIES																										
SAN JUAN P.R.	276	80	189	58	232	62	208	55	248	61	264	67	263	65	230	58	304	83	260	71	195	58	209	61	2877	65
WEST VIRGINIA																										
PARKERSBURG U	72	24	222	74					120	27	246	55	177	39	151	36	172	46			115	38	151	52		32
WISCONSIN																										
GREEN BAY	162	56	203	69	249	67	212	52	324	71	329	71	327	69	308	71	191	51	126	37	120	42	101	37	2651	59
MADISON	161	55	158	53	208	56	227	56	234	51	313	68	252	54	313	73	248	66	177	52	110	38	103	37	2503	56
MILWAUKEE	165	56	154	52	200	54	223	56	267	59	312	68	302	65	314	73	253	67	177	52	115	39	108	38	2588	58
WYOMING																										
CHEYENNE	203	68	181	61	257	69	258	64	314	70	345	76	354	77	325	76	319	85	274	79	166	56	189	66	3183	71
LANDER	166	57	160	54	237	64	244	61	241	53	346	76	351	76	317	74	271	72	237	69	122	42	115	41	2806	63
SHERIDAN	113	40	116	40	237	64	174	43	215	47	315	68	302	64	301	69	246	65	236	69	148	52	123	45	2525	57

Data from airport unless otherwise specified.  
 "U" indicates Urban, "R" indicates Rural, sites.



# ANNUAL CLIMATOLOGICAL DATA

## METRIC UNITS

SEA 1-2

State and Station	Temperature				Precipitation				Relative humidity		Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Averages		Extremes		Total		Snow-f		100am EST		700am EST		700pm EST		Average speed		Residual speed		Residual direction		Speed		Direction		Fastest mile (1.6 kilometers)		Average sky cover																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Daily maximum	Daily minimum	Annual	Highest	Lowest	Date	Date	Greatest in 24 hours	Date (s)	%	%	%	%	%	Average speed	Residual speed	Residual direction	Speed	Direction	Fastest mile (1.6 kilometers)	Date	Average sky cover	Clear, 0-3	Partly cloudy, 0-4-07	Cloudy, 0-8-10	Precipitation 25mm or more	Thunderstorms	Heavy fog	Max temp.	Min. temp.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	°C	°C	°C	°C	°C	Base 18.3°C	Base 18.3°C	mm	mm	mm	mm	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	°C and above	°C and below	°C and below	°C and below	°C and below	°C and below	°C and below	°C and below	°C and below	°C and below	°C and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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ANNUAL CLIMATOLOGICAL DATA  
METRIC UNITS

YEAR 1978

State and Station	Temperature					Precipitation				Relative humidity				Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Averages		Extremes			Heating degree days		Cooling degree days		Snow		Snow		Relative humidity		Fastest mile (1.6 kilometers)		Sunrise to sunset		Precipitation		Thunderstorms		Max. temp.		Min. temp.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Daily maximum	Daily minimum	Annual	Highest	Date	Lowest	Date	Base 18°C	Base 18°C	Total	Greatest in 24 hours	Date (s)	Total	Greatest in 24 hours	Date (s)	700m EST	1000m EST	100pm EST	700pm EST	Average speed	Resultant speed	Resultant direction	Speed	Direction	Fastest mile (1.6 kilometers)	Date	Average sky cover	Clear, 0-0.3	Partly cloudy, 0.4-0.7	Cloudy, 0.8-1.0	Precipitation 25mm or more	Snow 1/25mm or more																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

See reference notes at end of table

# ANNUAL CLIMATOLOGICAL DATA

## METRIC UNITS

YEAR 1979

State and Station	Temperature						Precipitation	Relative Humidity		Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Averages			Extremes				Snow †		Moisture		Direction		Speed		Fastest mile (16 kilometers)		Sunrise to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Daily maximum	Daily minimum	Annual	Highest	Lowest	Date		Date	Total	Greatest in 24 hours	mm	in	mm	in	mm	in	mm	in	Clear, 0-3	Partly cloudy, 0-4-7	Cloudy, 0-8-10	Precipitation 25mm or more	Snow 1/4" or more	Thunderstorms	Heavy fog	Max. temp. 32°C and above	Min. temp. 0°C and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											



ANNUAL CLIMATOLOGICAL DATA  
METRIC UNITS

1635 1375

State and Station	Temperature				Heating degree days Base 65° F	Cooling degree days Base 65° C	Precipitation				Relative humidity		Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	Averages		Extremes				Total	Greatest in 24 hours	Date (s)	Snow †		1000 m EST	7000 m EST	7000 m EST	Average speed	Resultant speed	Direction	Speed	Direction	Fastest mile (1.6 kilometers)	Date	Average sky cover	Clear, 0-0.3	Partly cloudy, 0.4-0.7	Cloudy, 0.8-1.0	Precipitation 25mm or more	Snow † or more	Thunderstorms	Heavy fog	32.2 C and above	0 C and below	-17.8 C and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Daily maximum	Daily minimum	Annual	Highest						Lowest	Date																						mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm

See reference notes at end of table



# ANNUAL CLIMATOLOGICAL DATA

## METRIC UNITS

Year 1976

State and Station	Temperature				Precipitation				Relative humidity		Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Averages		Extremes		Heating degree days		Cooling degree days		Snow 1		Residual speed		Fastest mile (1.6 kilometers)		Sunrise to sunset		Thunderstorms		Heavy fog		Max temp		Min temp																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Daily maximum	Daily minimum	Annual	Highest	Lowest	Date	Date	Base 18°C	Base 32°C	mm	mm	Total	Greatest in 24 hours	Date (5)	mm	mm	Greatest in 24 hours	Date (5)	Direction	Speed	Residual direction	Residual speed	Average speed	Direction	Date	Average sky cover	Clear, 0-3	Partly cloudy, 0-4	Cloudy, 0-8	Precipitation 25mm or more	Snow 25mm or more	Thunderstorms	32.2 C and above	0 C and below	0 C and below	-17.8 C and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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See reference notes at end of table

ANNUAL CLIMATOLOGICAL DATA  
METRIC UNITS

1975

State and Station	Temperature					Heating degree days		Cooling degree days		Precipitation				Relative humidity			Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	Averages		Extremes			Base 18/3°C	Base 18/3°C	Base 18/3°C	Base 18/3°C	Snow		Fastest mile (1.6 kilometers)	Average sky cover	Sunrise to sunset	Precipitation 25mm or more	Snow 1mm or more	Thunderstorms	Heavy fog	Max. temp 32.2°C and above	Min. temp 0°C and below	Clear, 0-3	Partly cloudy, 0-4	Cloudy, 0-8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Daily maximum	Daily minimum	Annual	Highest	Date					Lowest																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

See reference notes at end of table



# ANNUAL CLIMATOLOGICAL DATA

## METRIC UNITS

—FAS 1378

State and Station	Temperature				Heating degree days		Cooling degree days		Precipitation				Relative humidity			Wind				Number of days												
	Averages		Extremes		Base 18°C	Base 18°C	Base 18°C	Base 18°C	Snow		Snow		Relative humidity		Fastest mile (16 kilometers)	Direction		Speed	Direction	Sunrise to sunset		Thunderstorms	Heavy fog	Max temp	Min temp							
	Daily maximum	Daily minimum	Annual	Lowest	Date	Date	Date	Date	Total	Greatest in 24 hours	Date (s)	Greatest in 24 hours	%	%	%	Average speed	Resultant speed	Resultant direction	Average speed	Resultant direction	Clear 0-3	Partly cloudy 0-4-7	Cloudy 0-8-10	25mm or more	25mm or more	32.2 C and above	0 C and below	0 C and below	0 C and below			
NORTH CAROLINA	19.4	7.7	13.6	36.1	JUN 28	JAN 11	JAN 11	JAN 11	251	81	MAR 23	MAR 23	81	85	57	66	2.8	0.2	31	15.6	S	26+	5	90	0	0	0	0	0			
	21.3	9.4	15.1	36.7	JUN 28	FEB 23	FEB 23	FEB 23	269	101	MAR 23	MAR 23	86	89	57	71	3.0	0.4	28	14.3	S	26	4	43	38	59	7	83	0			
	22.9	11.4	17.2	37.8	JUN 28	JAN 11	JAN 11	JAN 11	96	24	T 2+	T 2+	87	87	58	76	3.5	0.2	27	21.5	S	26	4	48	29	63	4	58	0			
	10.6	-2.7	4.2	40.0	SEP 31	DEC 31	DEC 31	DEC 31	1356	431	MAY 24	MAY 24	74	78	55	55	3.9	0.6	29	24.1	N	12	11	42	11	21	110	178	70			
NORTH DAKOTA	9.7	-1.7	4.0	37.2	SEP 6	JUN 17	JUN 17	JUN 17	980	443	MAY 15	MAY 15	72	77	60	59	5.0	0.6	23	23.2	N	5	10	30	10	13	123	175	77			
	13.6	-2.4	3.9	38.9	SEP 5	JAN 16	JAN 16	JAN 16	1021	403	JUL 4	JUL 4	76	82	61	58	4.7	1.0	28	21.0	N	11	34	3	17	108	175	77	77			
	14.1	3.7	4.9	33.3	SEP 8	FEB 19	FEB 19	FEB 19	1481	847	AUG 10	AUG 10	74	78	59	64	4.1	1.1	24	19.7	S	26	25	3	63	137	7	7	7			
	16.4	9.4	11.4	33.9	JUL 20	FEB 7	FEB 7	FEB 7	1567	830	JAN 21	JAN 21	82	83	64	70	4.5	1.4	23	23.7	S	26	14	16	57	98	4	4	4			
OHIO	15.0	4.1	9.4	35.6	JUL 22	MAR 23	MAR 23	MAR 23	1207	943	DEC 8	DEC 8	73	75	57	61	3.7	0.7	24	23.7	S	26	20	14	60	122	9	9	9			
	15.1	4.7	9.9	35.6	JUL 22	FEB 23	FEB 23	FEB 23	1344	943	AUG 8	AUG 8	78	81	64	67	4.3	1.2	25	25.0	S	26	32	14	59	117	10	10	10			
	15.4	4.4	10.0	35.6	JUL 27	MAR 23	MAR 23	MAR 23	1478	941	JUN 18	JUN 18	75	80	61	66	4.7	1.7	23	18.3	S	26	31	9	64	134	9	9	9			
	13.8	2.4	4.1	36.7	SEP 5	FEB 16	FEB 16	FEB 16	1204	806	JAN 23	JAN 23	81	83	60	67	4.0	1.1	26	17.0	N	10	22	14	67	155	22	22	22			
OKLAHOMA	13.6	3.1	4.3	37.9	SEP 8	FEB 19	FEB 19	FEB 19	1445	990	AUG 23	AUG 23	78	81	62	67	4.3	1.1	24	16.5	S	26	28	6	65	141	6	6	6			
	21.5	9.7	15.4	41.1	JUL 26	FEB 18	FEB 18	FEB 18	602	762	MAY 19	MAY 19	71	78	55	53	5.3	1.1	14	22.4	NE	26	17	94	32	98	1	1	1			
	21.5	9.4	15.4	41.7	JUL 13	JAN 17	JAN 17	JAN 17	368	970	FEB 7	FEB 7	73	81	56	58	4.9	1.0	18	13.4	S	22+	45	9	96	32	94	1	1	1		
	16.7	6.3	10.3	34.4	AUG 7	DEC 31	DEC 31	DEC 31	66	56	NOV 30	NOV 30	80	73	87	89	3.4	0.4	21	15.6	S	3	47	1	8	50	0	0	0			
OREGON	15.7	4.8	7.5	35.1	AUG 7	DEC 30	DEC 30	DEC 30	998	302	MAR 19	MAR 19	57	74	74	74	23.9	0.6	23	23.9	N	6	15	19	24	199	5	5	5			
	16.9	4.7	10.4	40.0	AUG 7	DEC 30	DEC 30	DEC 30	78	1003	FEB 25	FEB 25	76	82	85	74	14.3	1.8	16	14.3	S	26	1	64	16	6	72	0	0	0		
	16.2	4.8	12.0	43.3	AUG 7	DEC 30	DEC 30	DEC 30	2557	400	FEB 20	FEB 20	71	49	72	83	2.1	0.6	31	14.3	S	27+	13	50	37	4	76	0	0	0		
	15.7	4.4	10.1	40.0	AUG 7	DEC 30	DEC 30	DEC 30	671	441	NOV 16	NOV 16	62	54	62	54	23.7	0.6	15	23.7	N	13	11	78	30	100	4	4	4			
PACIFIC AREA	16.3	4.4	11.4	36.3	AUG 7	DEC 30	DEC 30	DEC 30	140	776	MAY 19	MAY 19	75	62	79	88	3.6	0.4	15	17.0	S	31	12	43	17	4	60	0	0	0		
	17.1	5.4	11.4	41.1	AUG 7	DEC 30	DEC 30	DEC 30	112	51	DEC 19	DEC 19	73	62	79	86	2.8	0.6	21	13.9	S	10	41	20	4	73	0	0	0	0		
	12.0	4.2	4.4	35.6	SEP 7	FEB 19	FEB 19	FEB 19	1001	127	MAY 23	MAY 23	70	61	74	76	24.6	1.5	3	24.6	S	5	16	6	13	147	0	0	0	0		
	22.4	25.1	25.1	32.2	JUN 28	JAN 11	JAN 11	JAN 11	2292	2292	NOV 24	NOV 24	76	90	78	78	17.0	1.5	8	17.0	SE	26	272	0	3	0	0	0	0	0		
SOUTH CAROLINA	26.1	24.4	24.4	30.0	MAY 14	MAR 14	MAR 14	MAR 14	612	612	MAY 23	MAY 23	79	72	77	79	7.0	7.2	8	18.8	S	13	169	0	0	0	0	0	0	0		
	26.1	24.1	27.4	33.3	MAY 24	SEP 24	SEP 24	SEP 24	157	4	FEB 4	FEB 4	77	87	80	80	3.4	1.2	7	15.6	S	9	287	0	38	0	40	0	0	0	0	
	26.1	25.1	27.4	32.8	MAY 19	JUL 19	JUL 19	JUL 19	154	164	JAN 19	JAN 19	83	74	78	82	14.3	0.8	30+	14.3	S	26	244	0	9	0	0	0	0	0	0	
	26.1	24.1	27.4	32.7	MAY 19	JUL 19	JUL 19	JUL 19	157	164	JAN 19	JAN 19	83	76	79	82	4.6	3.6	7	14.5	N	3	271	0	0	0	0	0	0	0	0	
Tennessee	27.4	23.9	24.4	37.8	SEP 31	DEC 31	DEC 31	DEC 31	1011	944	MAY 23	MAY 23	79	88	77	77	11.6	1.5	8	11.6	SE	10	232	0	135	0	0	0	0	0		
	27.4	23.4	27.4	33.3	SEP 5	NOV 17	NOV 17	NOV 17	4044	4044	MAY 23	MAY 23	79	88	77	77	11.6	1.5	8	11.6	SE	10	232	0	135	0	0	0	0	0	0	
	27.4	23.4	27.4	33.3	SEP 5	NOV 17	NOV 17	NOV 17	4044	4044	MAY 23	MAY 23	79	88	77	77	11.6	1.5	8	11.6	SE	10	232	0	135	0	0	0	0	0	0	0
	27.4	23.4	27.4	33.3	SEP 5	NOV 17	NOV 17	NOV 17	4044	4044	MAY 23	MAY 23	79	88	77	77	11.6	1.5	8	11.6	SE	10	232	0	135	0	0	0	0	0	0	0

See reference notes at end of table



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Table 1-7a

State and Station	Temperature				Heating degree days				Cooling degree days				Precipitation				Relative humidity				Wind				Number of days										
	Averages		Extremes		Date	Base 18.3 C 65 F	Base 18.3 C 65 F	Date	Total	Greatest in 24 hours	Date (s)	Total	Greatest in 24 hours	Date (s)	700m EST	1000m EST	700m EST	1000m EST	Average speed m/s	Resultant speed direction	Fastest mile (1.6 kilometers)	Direction	Date	Average sky cover sunrise to sunset	Clear, 0-3	Partly cloudy, 04-07	Sunrise to sunset Cloudy, 08-10	Precipitation 25mm or more	Snow 1 25mm or more	Thunderstorms	Heavy fog	Max. temp 32.2 C and above	Min. Temp 0 C and below	-17.8 C and below	
	Daily maximum	Daily minimum	Annual	Highest																															Lowest
	C	C	C	C																															C
PACIFIC AREA	30.8	24.7	27.8	32.6	-22.2	AUG 2	3492	471	1168	50	26-27	1346	328	6-7	3.6	1.3	3.6	16.5	09	28	6.1	100	116	149	122	12	23	18	9	54	117	0	0	0	
TRUK MCH: ISLAND	30.8	24.7	27.8	32.6	-22.2	AUG 2	3492	471	1168	50	26-27	1346	328	6-7	3.6	1.3	3.6	16.5	09	28	6.1	100	116	149	122	12	23	18	9	54	117	0	0	0	
LAKE	29.9	24.0	26.9	33.9	-20.0	MAR 29	3208	297	890	49	30	2314	259	20-21	4.9	1.8	4.9	23.7	20	25	7.0	59	106	200	154	29	30	16	3	71	150	8	0	0	
VAP R	30.8	23.4	27.1	32.2	-20.0	AUG 8	3260	307	1110	85	26-27	1725	340	19-20	3.5	1.2	3.5	21.9	30	27	6.0	95	117	153	118	15	26	11	15	44	103	1	0	0	
PENNSYLVANIA	15.4	5.2	10.3	36.1	-17.2	FEB 20	3327	471	1168	50	26-27	1346	328	6-7	3.6	1.3	3.6	16.5	09	28	6.1	100	116	149	122	12	23	18	9	54	117	0	0	0	
ALLENTOWN	12.3	2.0	7.4	33.3	-24.4	FEB 19	4119	297	890	49	30	2314	259	20-21	4.9	1.8	4.9	23.7	20	25	7.0	59	106	200	154	29	30	16	3	71	150	8	0	0	
ERIE	16.3	5.9	11.2	35.6	-17.8	FEB 20	3105	544	1110	85	26-27	1725	340	19-20	3.5	1.2	3.5	21.9	30	27	6.0	95	117	153	118	15	26	11	15	44	103	1	0	0	
HARRISBURG	16.8	7.0	11.9	37.2	-13.3	MAR 5	3951	693	1167	93	34	1448	330	19-20	4.4	1.3	4.4	20.6	5	26	6.0	104	98	163	126	13	33	17	25	37	93	0	0	0	
PHILADELPHIA	14.9	4.8	9.8	35.0	-17.2	JAN 23	3487	444	960	45	8-9	1405	315	19-20	3.9	1.3	3.9	23.2	28	26	6.8	71	152	192	132	14	28	21	6	57	123	0	0	0	
PITTSBURGH	14.9	4.8	9.8	35.0	-17.2	JAN 23	3487	444	960	45	8-9	1405	315	19-20	3.9	1.3	3.9	23.2	28	26	6.8	71	152	192	132	14	28	21	6	57	123	0	0	0	
PITTSBURGH U	15.4	5.0	10.7	33.9	-16.7	JUN 10	3299	551	914	40	7-8	970	213	16-17	3.9	1.3	3.9	23.2	28	26	6.7	62	124	179	136	16	25	13	3	68	141	3	0	0	
SCRANTON	13.4	3.6	8.5	33.9	-18.9	FEB 20	3806	298	837	48	18-19	1487	257	6-7	3.5	0.9	3.5	17.4	5	26	6.7	62	124	179	136	16	25	13	3	68	141	3	0	0	
WILLIAMSPORT	14.8	4.8	9.8	35.0	-19.4	FEB 20	3493	459	1102	71	13-14	1755	279	17-18	3.1	0.9	3.1	23.2	26	21	6.9	54	129	182	133	20	25	38	7	59	120	6	0	0	
ALBUQUERQUE	12.7	6.3	9.5	30.0	-14.4	FEB 23	3351	210	92	34	34	1770	701	6-7	4.5	1.4	4.5	20.6	20	26	5.7	123	101	141	111	12	17	19	5	44	130	2	0	0	
PROVIDENCE	14.2	4.2	9.2	36.1	-17.8	FEB 11	3580	339	1194	80	6-7	1770	701	6-7	4.5	1.4	4.5	20.6	20	26	5.7	123	101	141	111	12	17	19	5	44	130	2	0	0	
SOUTH CAROLINA	24.1	12.5	18.3	37.2	-7.2	FEB 28	1221	1288	1039	86	23-24	10	10	9	3.8	0.3	3.8	17.9	20	25	6.0	100	107	158	96	0	56	26	52	0	51	0	0	0	
CHARLESTON	22.9	15.0	19.0	37.2	-4.4	FEB 7	1117	1431	1148	120	16	0	0	0	2.7	0.2	2.7	15.6	26	26	5.7	111	107	147	96	0	46	26	69	0	68	0	0	0	
CHARLESTON U	23.6	10.1	16.8	37.2	-11.1	JAN 11	1610	1118	1076	71	19-20	13	13	9	2.8	0.2	2.8	15.6	26	26	5.7	111	107	147	96	0	46	26	69	0	68	0	0	0	
COLUMBIA	20.7	9.6	13.2	36.7	-10.6	JUN 28	1951	866	1042	61	24-25	99	71	2	2.9	0.5	2.9	18.8	54	26	5.2	136	110	119	98	1	35	30	35	2	70	0	0	0	
GRANVILLE-SPRING	10.7	-1.4	4.7	36.7	-36.4	JAN 10	5292	366	569	132	29-30	663	91	1-2	6.5	2.3	6.5	23.2	25	26	6.1	96	116	153	95	13	20	115	180	68	61	0	0	0	
ABERDEEN	12.2	-1.2	5.6	40.0	-32.8	SEP 5	5015	409	404	31	7-8	716	97	11-12	4.9	0.4	4.9	23.2	25	26	5.8	104	116	141	97	8	38	15	31	94	177	61	0	0	
HURON	13.5	1.1	6.8	40.0	-28.3	SEP 6	4568	372	395	49	20-21	953	130	11-12	5.0	1.5	5.0	27.3	25	26	5.8	106	113	146	109	14	41	17	34	79	163	33	0	0	
RAPID CITY	11.9	-1.1	5.9	36.4	-31.7	SEP 2	4864	413	589	53	21-22	828	183	2-3	5.0	0.4	5.0	20.6	26	14	5.9	109	102	154	100	12	48	15	17	101	169	54	0	0	
STOUX FALLS	18.9	6.8	12.6	34.4	-21.7	JAN 11	2621	607	1030	73	2	615	104	19-20	2.3	0.6	2.3	16.5	25	26	6.0	97	127	141	127	10	37	51	10	22	94	3	0	0	
TENNESSEE	21.3	9.5	15.4	36.7	-13.3	JAN 30	2035	1026	1018	62	18	91	36	12	2.5	0.4	2.5	13.4	24	14	5.9	116	89	160	107	1	51	28	47	13	72	0	0	0	
CHATTANOOGA	20.2	9.2	14.7	35.6	-15.6	JAN 28	2141	896	1081	69	10	472	119	19-20	2.8	0.8	2.8	15.6	27	26	5.8	107	115	143	117	10	36	33	27	13	74	0	0	0	
KNOXVILLE	21.7	11.4	16.6	36.7	-10.0	FEB 6	1880	1310	1620	138	3	191	61	25	3.4	0.2	3.4	16.5	26	29	5.4	135	92	138	112	3	62	10	77	14	69	0	0	0	
MEMPHIS	20.2	8.4	14.4	36.7	-13.9	JAN 26	2382	1006	1357	130	7-8	638	140	21	3.4	0.5	3.4	14.8	34	34	5.8	114	100	151	124	10	47	25	57	24	88	0	0	0	
NASHVILLE	19.8	6.6	13.2	36.7	-16.1	JAN 11	2490	691	1230	80	7-8	462	76	20	3.4	0.5	3.4	14.8	34	25	5.6	125	103	137	124	9	34	14	36	14	96	0	0	0	
OAK RIDGE	24.3	11.6	17.9	43.3	-11.1	JAN 20	1739	1667	464	160	3	127	25	3	5.6	2.2	5.6	20.1	25	26	5.1	152	88	125	67	3	30	7	121	9	71	0	0	0	
TEXAS	24.3	11.6	17.9	43.3	-11.1	JAN 20	1739	1667	464	160	3	127	25	3	5.6	2.2	5.6	20.1	25	26	5.1	152	88	125	67	3	30	7	121	9	71	0	0	0	
ABILENE	20.3	6.4	13.3	40.6	-20.0	DEC 9	2615	865	559	71	1-2	632	122	16-17	6.0	1.7	6.0	18.3	32	25	4.9	152	94	119	77	10	49	40	71	29	116	1	0	0	
AMARILLO	24.9	13.6	19.4	40.6	-7.2	DEC 10	1286	1710	787	88	3	100	10	4	4.0	0.8	4.0	18.8	25	25	5.9	115	102	148	82	0	35	17	109	1	39	0	0	0	
AUSTIN	28.4	18.0	23.2	37.8	-6.6	AUG 10	493	2327	683	55	9-10	0	0	0	4.0	2.0	4.0	17.0	SE	10	6.4	87	115	163	74	0	27	29	142	0	0	0	0	0	
ARROWSVILLE	28.4	18.0	23.2	37.8	-6.6	AUG 10	493	2327	683	55	9-10	0	0	0	4.0	2.0	4.0	17.0	SE	10	6.4	87	115	163	74	0	27	29	142	0	0	0	0	0	

See reference notes at end of table

## ANNUAL CLIMATOLOGICAL DATA

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FEB 1972

State and Station	Temperature				Precipitation				Relative humidity			Wind				Number of days																								
	Averages		Extremes		Date	Lowest	Heating degree days Base 18.3°C	Cooling degree days Base 18.3°C	Snow		Date (s)	Greatest in 24 hours	Total	Greatest in 24 hours	Date (s)	Total	Greatest in 24 hours	Date (s)	Fastest mile (16 kilometers)	Direction	Date	Average sky cover Tenths	Clear, 0-0.3	Partly cloudy, 0.4-0.7	Cloudy, 0.8-1.0	Precipitation 25mm or more	Thunderstorms	Heavy fog	32.2°C and above	0°C and below	Min temp below -17.8°C and									
	Daily maximum	Daily minimum	Annual	Highest																																				
TEXAS	C	°C	C	°C	AUG	-6.1	720	2081	994	144	JUN 1-2	T	467	191	17	JAN 2	87	90	64	70	5.9	4.4	11	17.0	16	JUL 1	6.3	78	123	164	78	0	22	35	122	0	6	0		
CORPUS CHRISTI	27.1	16.6	21.8	38.3	2P	-6.1	720	2081	994	144	JUN 1-2	T	467	191	17	JAN 2	87	90	64	70	5.9	4.4	11	17.0	16	JUL 1	6.3	78	123	164	78	0	22	35	122	0	6	0		
DALLAS FT WORTH	24.1	11.6	18.0	41.7	15	-12.8	1690	1687	619	90	MAY 28	467	191	17	FER 17	69	79	54	51	4.7	1.1	19	18.3	32	MAY 31	5.2	14.6	81	138	69	5	33	13	119	13	54	0			
DEL RIO	26.8	14.8	20.7	40.6	16	-3.9	11	985	1898	489	70	NOV 4	0	0	DEC 9	66	80	55	46	4.4	2.2	12	20.6	32	DEC 9	5.7	11.5	102	147	71	0	38	12	139	0	20	0			
EL PASO	25.4	10.9	18.2	43.9	24	-10.6	1306	1309	319	39	SEP 24	319	39	39	DEC 24	39	31	49	61	3.4	0.8	24	15.6	27	DEC 24	3.9	193	93	79	55	0	31	0	163	0	44	0			
HOUSTON	23.1	17.8	20.4	38.9	16A	-2.2	922	1763	744	80	JUN 11	744	80	80	JUN 20	78	82	71	74	14.8	14.8	14.8	14.8	58	APR 6	6.3	84	123	158	108	0	90	36	109	0	17	0			
INTERCON	25.4	13.1	19.3	38.9	16	-6.7	1184	1592	1141	126	SEP 7	10	10	10	NOV 19-20	89	93	61	67	3.6	3.0	10	20.1	14	APR 6	6.3	84	123	158	108	0	90	36	109	0	17	0			
JACKSON	22.1	8.4	19.3	41.1	23A	-18.9	2150	1126	347	48	SEP 20	478	221	16-17	FER 17	69	79	54	51	4.7	1.1	19	18.3	32	JUN 3	4.7	15.6	82	117	66	7	38	27	89	21	98	2			
MINERAL	23.7	9.4	16.8	39.4	17	-10.6	1650	1150	439	53	NOV 25	56	28	62	FER 17	62	73	45	40	4.9	2.1	15	19.7	33	JUN 3	4.8	165	80	120	55	2	31	24	88	4	66	0			
PERRY ARTS	28.9	15.9	20.7	36.1	22	-6.4	962	1901	957	80	NOV 27	7	7	84	FER 17	84	87	60	68	4.7	0.9	11	15.2	14	JUN 3	5.5	75	133	137	93	0	59	36	121	1	21	0			
SAN ANGELO	24.3	11.8	17.8	41.1	16	-10.0	1332	1403	373	46	JUN 9	269	188	21	JAN 4	69	81	52	46	4.7	1.7	16	15.6	14	SEP 16	5.3	140	94	131	68	3	24	7	102	9	61	0			
SAN ANTONIO	25.3	14.1	19.7	38.3	16	-7.8	1105	1663	914	130	SEP 13	7	7	76	MAR 4	76	84	59	54	4.6	1.4	11	17.9	36	JAN 4	6.3	84	119	162	76	0	39	14	89	0	40	0			
VICTORIA	25.7	15.7	20.4	37.2	17A	-5.6	10	972	1796	1094	199	313	0	0	JAN 3	86	90	62	66	4.2	1.3	10	21.0	N	APR 23	5.6	76	123	172	99	0	45	40	104	0	19	0			
WACO	25.0	13.7	19.1	41.7	16A	-7.8	20	1473	1822	604	48	6	66	33	JAN 3	70	80	54	51	4.5	1.4	17	16.5	32	APR 23	5.5	136	81	144	73	1	34	13	121	4	55	0			
WICHITA FALLS	23.9	9.7	16.8	43.6	15	-15.6	2042	1560	599	66	MAR 7	424	107	17	FER 17	72	83	52	51	5.4	1.4	13	13.9	33	APR 23	5.1	146	81	138	75	6	39	10	117	23	92	0			
UTAH																																								
MILFORD	18.2	1.1	9.7	36.3	JUL	-24.4	8	3412	310	332	24	NOV 1-2	1250	216	11-12	NOV 10	72	74	57	61	3.0	0.8	22	16.8	N	JUL 23	7.3	54	94	217	151	19	19	0	87	161	35			
SALT LAKE CITY	18.3	5.8	11.8	39.6	JUL	-16.7	31A	2885	566	499	43	17-18	1816	122	10	NOV 10	47	43	62	68	4.7	1.2	17	20.1	N	AUG 13	5.8	119	83	103	101	25	28	2	63	11	90	0		
VERMONT																																								
BURLINGTON	11.2	4.7	5.9	33.3	MAY	-28.3	4	4761	272	789	39	6-9	2301	432	25-26	DEC 23	72	74	57	61	3.0	0.8	22	16.8	N	JUL 23	7.3	54	94	217	151	19	19	0	87	161	35			
VIRGINIA																																								
LYNCHBURG	18.7	7.2	13.0	38.0	19	-15.6	11	2361	692	1133	93	26	430	152	2-3	MAR 26	79	52	79	52	2.9	0.6	28	19.2	SE	APR 26	5.4	133	101	131	127	9	24	13	24	0	0			
MEMPHIS	19.6	10.1	14.8	38.6	20A	-9.4	18A	2053	853	1210	79	40	325	157	MAR 26	80	80	59	71	4.5	0.4	39	17.9	24	APR 26	5.8	113	104	148	110	3	39	14	31	8	71	0			
RICHMOND	20.3	7.9	14.2	37.8	23	-12.2	5A	2324	874	1210	66	26	290	99	3	APR 26	86	88	57	70	3.1	0.4	39	18.8	3	JUN 26	6.0	104	105	135	114	3	35	34	51	8	87	0		
ROANOKE	18.6	7.1	12.9	36.1	23A	-15.6	10	2644	721	1150	141	25-26	917	191	12-13	JAN 3	74	77	52	59	3.4	1.1	29	19.7	27	JUN 26	6.0	105	103	137	115	12	31	18	31	17	95	0		
WALPOLE ISLAND	16.9	8.9	12.9	34.4	22	-10.0	10	2486	590	1048	63	1-2	348	112	2	DEC 2	66	66	66	66	3.0	0.8	30.8	30.8	N	APR 27	5.1	146	81	138	75	6	39	10	117	23	92	0		
WASHINGTON																																								
WASHINGTON	15.4	4.8	10.2	37.8	8	-20.6	31	3014	81	1116	63	22-23	439	368	18-19	NOV 16	78	65	85	92	2.8	1.2	21	13.4	17	DEC 16	7.7	47	73	245	174	3	10	97	17	4	85	0		
WILMINGTON	14.4	4.9	9.7	35.6	7	-12.8	31	3123	23	1817	53	24-25	76	41	30	DEC 19	81	72	93	93	2.4	0.3	17	13.0	NE	DEC 19	7.6	49	75	241	213	2	3	42	4	4	56	0		
SEATTLE	15.3	7.7	11.5	33.9	8	-10.0	31	2524	89	921	51	NOV 31	132	76	18-19	NOV 19	76	60	72	78	3.4	0.7	17	13.6	E	DEC 19	7.6	49	75	241	213	2	3	42	4	4	56	0		
SEATTLE-TACOMA	15.5	7.3	11.4	35.0	8A	-10.6	31	2580	117	863	57	SEP 22-23	130	124	18-19	NOV 19	76	60	72	78	3.4	0.7	17	13.6	E	DEC 19	7.6	49	75	241	213	2	3	42	4	4	56	0		
SPokane	12.8	2.3	7.6	36.7	9	-30.0	31	4034	181	487	23	27-28	1476	170	2-3	JAN 3	67	55	72	81	3.8	1.3	19	17.9	S	NOV 7	7.2	64	77	222	112	19	10	52	14	54	145	9		
STANFORD PASS	7.2	4.8	4.0	30.0	8	-23.3	31	5198	33	1726	52	25-30	7785	625	30-1	NOV 7	78	75	87	87	3.0	1.3	19	17.9	S	NOV 7	7.2	64	77	222	112	19	10	52	14	54	145	9		
WALLA WALLA	16.6	6.4	11.7	40.6	8	-20.0	31	2779	419	464	32	15	739	140	19	NOV 19	66	66	66	66	3.0	1.3	19	17.9	S	NOV 7	7.2	64	77	222	112	19	10	52	14	54	145	9		

See reference notes at end of table



## ANNUAL CLIMATOLOGICAL DATA

## METRIC UNITS

FA-122

State and Station	Temperature						Precipitation				Relative humidity			Wind				Number of days																				
	Averages			Extremes			Heating degree days Base 18°C	Cooling degree days Base 18°C	Snow		Snow t		Relative humidity			Wind		Sunrise to sunset		Thunderstorms	Heavy fog	Max. temp. 32°C and above	Min. temp. 0°C and below	-17°C and below														
	Daily maximum	Daily minimum	Annual	Highest	Lowest	Date			Date	Total	Greatest in 24 hours	Date (s)	Total	Greatest in 24 hours	Date (s)	1000 m EST	7000 m EST	1000 m EST	Average speed m/s						Resultant speed m/s	Resultant direction	Fastest mile (16 kilometers)											
																											Speed	Direction	Date									
WASHINGTON	C	C	C	C	C	C	Base 18°C	Base 18°C	mm	mm	mm	mm	mm	mm	%	%	%	m/s	m/s	m/s	Direction	Date	Tenths	Clear, 0-3	Partly cloudy, 0-4	Cloudy, 0-8	Precipitation 25mm or more	Snow 25mm or more										
WASHINGTON	16.6	2.7	9.6	38.3	-22.8	DEC 30	3347	229	204	15	JAN 14-15	338	119	18-19	NOV 19	56	45	67	77	3.7	1.5	29	15.6	30	10	6.2	97	93	176	79	3	9	13	27	14	133	5	
WEST INDIES	30.9	23.8	27.3	35.0	20.0	DEC 16	0	3341	1266	114	10-11	0	0	0	0	84	81	66	79	3.8	2.8	9	13.9	5+	26+	5.7	69	212	84	191	0	43	0	90	0	0	0	
WEST VIRGINIA	15.4	4.7	10.1	31.1	-23.3	JUN 27	3245	307	977	51	25-26	1864	165	19-20	JAN 19	83	85	63	70	3.9	1.0	25	19.7	25	26	7.2	53	109	203	150	28	41	37	0	43	106	9	
CHARLESTON	17.6	6.4	12.0	33.3	-18.9	JAN 20	2843	619	1328	81	15-16	1795	401	19-20	JAN 19	80	82	57	65	4.0	0.5	24	19.2	5+	26	7.1	51	112	207	172	25			0	44	152	24	
ELKINS	15.3	2.9	8.8	30.6	-27.8	JUN 23	3685	277	1195	52	26	1699	145	16	JAN 16	85	85	61	72	2.0	0.7	24	16.5	26	26	7.2	67	98	207	141	18	39	81	22	37	97	2	
HUNTINGTON	17.6	6.9	12.3	36.1	-20.6	JAN 23	2861	727	1148	85	7-8	1290	295	19-20	JAN 19	74	78	59	59	2.0	0.7	24	16.5	26	26	7.2	67	98	207	141	18	39	81	22	37	97	2	
PARKERSBURG	16.1	6.2	11.2	32.8	-18.9	SEP 10	3110	563	936	55	7-8	1161	173	19-20	JAN 19	74	78	59	59	2.0	0.7	24	16.5	26	26	7.2	67	98	207	141	18	39	81	22	37	97	2	
WISCONSIN	11.1	0.7	5.6	32.2	-25.6	JAN 10	4808	244	846	53	11-12	1308	191	25-26	JAN 25	77	80	65	68	4.6	1.1	24	21.0	N+	26	6.4	84	111	170	115	16	33	14	2	101	171	39	
GREEN BAY	12.9	1.4	7.2	37.8	-28.3	FEB 7	4448	456	922	7	10-11	1026	1293	206	31	DEC 31	85	87	63	67	3.9	0.8	27	19.2	5+	26	6.4	84	114	167	116	14	39	16	15	87	174	39
MANITON	12.7	0.4	6.6	36.1	-24.4	JAN 30	4549	327	926	97	30-31	1293	206	31	DEC 31	85	87	63	67	3.9	0.8	27	19.2	5+	26	6.4	84	114	167	116	14	39	16	15	87	174	39	
MILWAUKEE	11.6	2.9	7.2	32.8	-22.2	DEC 10	4279	304	1035	79	12-13	1956	315	30-31	MAY 30	79	82	67	70	5.0	1.3	27	22.4	N	13	6.3	95	102	166	141	20	34	29	3	83	148	11	
MINNAPOLIS	13.6	-1.1	6.3	36.1	-36.7	DEC 31	4589	246	448	66	17-18	2663	330	3	MAY 3	49	45	65	70	5.4	2.3	24	21.5	28	18	6.2	94	105	166	110	31	31	13	26	67	185	36	
CASPER	13.8	0.0	6.9	33.9	-26.7	DEC 31	4263	165	275	38	5-6	1773	373	5-6	MAY 5	41	42	57	61	5.7	2.4	28	32.2	N+	18	5.8	110	120	135	97	21	39	31	9	46	175	17	
CHEYENNE	13.0	-1.6	5.7	35.6	-35.6	JUL 27	4756	227	365	31	10-11	3294	424	9-10	NOV 9	51	44	59	66	2.9	0.8	24	20.6	5+	26	5.7	116	103	146	77	22	29	11	18	72	181	40	
LANDER	12.6	-2.1	5.2	37.2	-33.9	DEC 31	4902	161	492	49	16-17	2106	208	9-10	NOV 9	56	55	75	78	3.7	1.6	30	20.1	N+	11	6.4	86	106	173	115	28	36	6	17	84	178	51	

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

Data in this table are obtained by conversion from data in the English Units table.

+ Includes all forms of frozen precipitation, except hail occurring alone.

+ And also on an earlier date or dates.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak gust.

Y Sun below horizon November 19 - January 23, inclusive.

X Sun below horizon November 24 - January 17, inclusive.



# NORMALS, MEANS AND EXTREMES

YEAR 1978

[illegible]

# NORMALS, MEANS AND EXTREMES

1978

[illegible]



# NORMALS, MEANS AND EXTREMES

YEAR 1972

State and Station	Temperature (°C)										Normal Heating Days (1941-1970)				Normal (1941-1970)				Precipitation (Millimeters)				Snow @				Relative Humidity (Percent)				Wind Speed (m.p.s.)				Sunshine (% of Possible)				Annual Mean Number of Days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	Normal (1941-1970)										Extremes				Normal (1941-1970)				Extremes				Mean 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# NORMALS, MEANS AND EXTREMES

YEAR 1978

State and Station	Temperature (°C)				Normal Heating Degree Days (1941-1970)				Precipitation (Millimeters)				Relative Humidity (Percent)				Wind Speed (m.p.s.)				Sunshine (% of Possible)				Annual Mean Number of Days				
	Normal (1941-1970)				Extremes				Normal (1941-1970)				Extremes				Mean				Snow @				Sunrise to Sunset				
	January				Record				Monthly				Monthly				January				January				Clear				
	Maximum				Highest				Daily				Maximum				Maximum				Maximum				Partly Cloudy				
	Minimum				Lowest				Seasonal				Minimum				Minimum				Minimum				Cloudy				
Elevation (Meters)		Annual		Length (Yrs)		Record		Extremes		Normal (1941-1970)		Extremes		Normal (1941-1970)		Extremes		Mean		Snow @		Extremes		Mean		Sunrise to Sunset		Annual Mean Number of Days	
		January		July		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	
		Maximum		Minimum		Maximum		Minimum		Daily		Maximum		Minimum		Maximum		January		January		Maximum		January		Maximum		Annual Mean Number of Days	

# NORMALS, MEANS AND EXTREMES

YEAR 1978

[illegible]



# NORMALS, MEANS AND EXTREMES

YEAR 1978

State and Station	Elevation Ground (Meters)	Temperature (°C)				Normal Heating Days (1941-1970)				Precipitation (Millimeters)				Relative Humidity (Percent)				Wind Speed (m p s)		Annual Mean Number of Days										
		Normal (1941-1970)				Extremes				Normal (1941-1970)				Extremes				Snow @		Sunshine		Temperature								
		January				Annual				Annual				January				Mean Speed		Sunrise to Sunset		Max								
		July				Length (Yrs)				Westest				Driest Month				Ex-treme		July		VI								
		January	Maximum	Minimum	Daily	Record Highest	Record Lowest	January	Westest	Driest	Month	Annual	Westest	Driest	Month	Maximum	In 24 Hours	January	July	Fastest Mile (1 Kilometers)	July	January	Clear	Partly Cloudy	Cloudy	Precipitation 25mm or More	Snow, Sleet, or Hail 25mm or More	Thunderstorms	Max	Min
PACIFIC AREA																														
110	28.4	21.6	10.2	22.6	25.9	22	35.0	12.2	0	75	230.3	13	686	0	0	0	3.7	2.395	85.661	81.312	269	0	27	0	0	4	0	0		
2	27.1	22.7	29.2	25.3	26.1	21	31.7	16.7	0	84	26	713	401	2	0	0	0	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0	
29	30.2	23.8	30.6	24.3	27.5	27	35.0	20.6	0	111	180	3650	484	31	355	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
3	29.4	22.2	30.4	25.3	27.7	25	36.1	20.6	0	304	61	2573	772	1	436	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
3	29.3	24.0	29.7	24.6	27.4	20	36.1	20.6	0	404	177	3659	790	10	454	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
4	30.0	24.3	29.7	24.6	27.4	19	33.3	16.7	0	377	154	3265	830	18	274	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
37	29.9	24.2	30.7	22.7	26.9	20	35.6	18.9	0	407	231	4920	942	27	571	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
3	29.6	24.2	30.3	23.4	27.3	21	34.4	20.0	0	404	163	3701	866	21	379	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
3	21.6	22.5	30.6	25.0	26.6	31	33.9	17.8	0	161	27	936	449	2	381	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
13	29.6	22.2	30.7	24.1	27.3	31	36.1	18.3	0	388	137	3047	482	23	245	0	0	3.8	7.266	86.979	85.544	161	0	0	0	0	0	0	0	0
PENNSYLVANIA																														
118	2.1	-5.8	28.7	17.1	17.6	91	43.9	-1.1	0	687	3237	111	64	1079	2	122	0	876	4577	7628	99240	4.6	2.782	26081	0	16	0	31	0	0
223	-2.1	-5.8	35.2	18.4	17.6	31	40.0	-2.4	0	687	3237	111	64	1079	2	122	0	876	4577	7628	99240	4.6	2.782	26081	0	16	0	31	0	0
103	-3.2	-5.8	35.2	18.4	17.6	31	40.0	-2.4	0	687	3237	111	64	1079	2	122	0	876	4577	7628	99240	4.6	2.782	26081	0	16	0	31	0	0
2	4.5	-2.2	30.4	19.3	12.6	37	40.0	-2.4	0	687	3237	111	64	1079	2	122	0	876	4577	7628	99240	4.6	2.782	26081	0	16	0	31	0	0
347	1.6	-2.2	28.1	16.3	10.2	24	37.2	-2.8	0	635	3594	1																		



# NORMALS, MEANS AND EXTREMES

YEAR 1978

[illegible]

# NORMALS, MEANS AND EXTREMES

YEAR 1978

Sta.'s and Station	Elevation Ground (Meters)															Temperature (°C)										Normal Heating Degree Days (1941-1970)		Precipitation (Millimeters)						Relative Humidity (Percent)				Wind Speed (m.p.s.)		Annual Mean Number of Days				Temperature												
	Normal (1941-1970)				Extremes				Length (Yrs)	Record Highest	Record Lowest	January	Seasonal	Normal (1941-1970)		Extremes		Snow @		January		July		Mean Speed	July	Fastest Mile (16 Kilometers)	January	July	Precipitation 25mm or More	Snow, Sleet, Hail 25.4mm or More	Thunderstorms	Heavy Fog	32.2 °C	IV	0 °C	V	-17.8 °C																			
	Daily Maximum	Daily Minimum	Daily	Annual	Wettest Month	Driest Month	Annual	Wettest Month						Driest Month	Maximum In 24 Hours	January	Seasonal	Maximum In 24 Hours	Ex-treme	7:00 a.m. EST	7:00 p.m. EST	1:00 p.m. EST	7:00 a.m. EST															1:00 p.m. EST	7:00 p.m. EST	January	Mean Speed	Fastest Mile (16 Kilometers)	January	Clear	Partly Cloudy	Cloudy	Sunrise to Sunset	Precipitation 25mm or More	Snow, Sleet, Hail 25.4mm or More	Thunderstorms	Heavy Fog	32.2 °C	IV	0 °C	V	-17.8 °C

Data from airport or from airport and Urban site records combined.  
U indicates Urban, R indicates Rural Sites.

Data for this table are based on records through 1978 except as indicated in notes.

Date after station name indicates last year included in summarization of data.

Normal values are based on the period 1941-1970, and are means adjusted to represent observations taken at the present standard location, except that stations closed before 1971 are based on the 1931-1960 period.

Degree days are based on a daily average of 18.3°C.

For detailed periods of record see ANNUAL LOCAL CLIMATOLOGICAL DATA, 1978.

Clear Day averages 0-3 tenths sky cover. Partly Cloudy 4-7 tenths and Cloudy 8-10 tenths.

Heavy Fog includes data formerly referred to as "Dense" or "Thick". The upper visibility limit for heavy fog is 402.3 meters.

\* Less than one-half.

B Number of days Maximum 21.1° or above (Alaskan stations).

1' Means and extremes are from post office location through 1962.

c Relative Humidity readings 8:00 a.m. and NOON Local Time.

x Sun below horizon continuously Nov. 19 - Jan. 23.

v Sun below horizon continuously Nov. 24 - Jan. 17.

(x and v)-Yearly totals for period sun above horizon.

m Mean wind speed record for 1949-1951, 1958-1962.

@ Includes all forms of frozen precipitation, except hail occurring alone.



# ELEVATIONS

State and Station			State and Station			State and Station			State and Station		
	Ft	Mtrs		Ft	Mtrs		Ft	Mtrs		Ft	Mtrs
ALABAMA			IDAHO			NEVADA			TENNESSEE		
Birmingham	630	192	Boise	2868	871	Henderson	5077	1547	Bristol	1525	465
Montevallo	644	196	Lewiston	1436	438	Las Vegas	2180	664	Chattanooga	1988	605
Mobile	221	67	Pocatello	4478	1365	Reno	4400	1341	Knoxville	980	299
Montgomery	202	62				Winnemucca	4314	1314	Memphis	284	87
ALASKA			ILLINOIS			NEW HAMPSHIRE			Nashville	605	184
Anchorage	132	40	Chicago (O'Hare)	674	205	Concord	346	105	Oak Ridge	194	59
Annette	110	34	Chicago (Midway)	623	190	Concord	6267	2056			
Barrow	13	4	Ellettsville	594	181				TEXAS		
Barter Island	50	15	Evansville	662	202				Amarillo	2004	609
Bethel	150	46	Fort Wayne	743	226				Austin	621	189
Bettles	672	205	Indianapolis	613	187	NEW JERSEY			Beaumont	20	6
Big Delta	1271	389				Atlantic City	67	20	Corpus Christi	14	13
Cold Bay	205	63	INDIANA			Atlantic City	30	9	Dallas Fort Worth	576	176
Fort Banks	454	138	Fort Wayne	828	252	Atlantic City	1990	607	Del Rio	1027	313
Gulkana	1009	308	Indianapolis	808	246				El Paso	2916	898
Homer	73	22	South Bend	773	236	NEW MEXICO			Galveston	1	0
Janderburg	24	7				Albuquerque	5314	1620	Houston	108	33
King Salmon	49	15	IOWA			Clayton	4972	1511	Lubbock	3241	988
Kodiak	111	34	Des Moines	702	214	Roswell	3619	1103	Marathon	2882	879
Kotzebue	16	5	Des Moines	963	294	NEW YORK			Port Arthur	22	7
Me. Heath	338	103	Des Moines	1080	329	Albany	292	89	San Angelo	2908	885
Nome	22	7	Sioux City	1103	336	Binghamton	1638	499	San Antonio	794	242
St. Paul Island	28	9	Waterloo	878	268	Buffalo	706	215	Saratoga	114	36
Summit	2405	733	KANSAS			New York	U 87	27	Waco	508	155
Talkeeta	356	109	Concordia	1484	452	New York Kennedy AP	22	7	Wichita Falls	1000	314
Unalakleet	21	6	Goodland	2592	790	New York LaGuardia	31	9			
Yakutat	31	9	Topeka	885	270	Rochester	555	169	UTAH		
ARIZONA			Wichita	1340	408	Syracuse	408	124	Alton	5033	1534
Flagstaff	7018	2139	KENTUCKY			NORTH CAROLINA			Salt Lake City	4227	1288
Phoenix	1107	337	Covington	877	267	Asheville	2170	661	Wendover	4239	1292
Tucson	2555	779	Louisville	889	271	Cape Hatteras	11	3			
Winslow	4883	1488	Louisville	488	149	Charlotte	769	234	VERMONT		
Yuma	206	63	LOUISIANA			Greensboro	886	270	Burlington	340	104
ARKANSAS			Alexandria	118	36	Charlotte	769	234	VIRGINIA		
Fort Smith	463	141	Baton Rouge	76	23	Greensboro	886	270	Lynchburg	937	286
Little Rock	265	81	Lake Charles	32	10	Raleigh	441	134	Norfolk	30	9
CALIFORNIA			New Orleans	259	79	Wilmington	38	12	Pittsburg	177	54
Bakersfield	492	150	Shreveport	1610	492	NORTH DAKOTA			Roanoke	1176	358
Bishop	4145	1263			Fargo	899	274	WASHINGTON			
Blue Canyon	5283	1610	MAINE			Williston	1905	581	Olympia	200	61
Eureka	U 60	18	Caribou	628	191				Quincy	205	62
Fresno	327	100	Portland	63	19	OHIO			Seattle-Tacoma	450	137
Long Beach	40	12	MARYLAND			Cincinnati	627	191	Seattle	28	9
Los Angeles	104	32	Baltimore	155	47	Cleveland	805	245	Spokane	2365	721
Los Angeles	U 512	156	MASSACHUSETTS			Columbus	833	254	Stamper Pass	R 3967	1209
Mt. Shasta	R 3587	1093	Blue Hill Obs.	R 640	195	Dakota	1003	306	Wallula Walla	U 994	302
Oakland	7	2	Boston	29	9	Mansfield	1312	400	Yakima	1066	325
Red Bluff	353	108	Worcester	1017	310	Toledo	692	211			
Sacramento	25	8	MICHIGAN			Youngstown	1186	361	WEST INDIES		
Sandberg	R 4523	1379	Alpena	693	211	OKLAHOMA			San Juan, P. R.	62	19
San Diego	28	9	Detroit	626	191	Oklahoma City	1304	397	WEST VIRGINIA		
San Francisco	U 155	47	Detroit Metro.	664	202	Tulsa	676	206	Beckley	2514	766
San Francisco	18	5	Flint	766	233	OREGON			Charleston	951	290
Santa Maria	238	73	Grand Rapids	803	245	Astoria	22	7	Elkins	1997	608
Stockton	27	8	Houghton Lake	1160	354	Burns	U 4170	1271	Huntington	838	256
COLORADO			Lansing	874	266	Endicott	373	114	Parkersburg	U 637	194
Alamosa	7541	2298	Muskegon	U 734	224	Medford	1429	405	WISCONSIN		
Colorado Springs	6170	1881	Sault Ste. Marie	724	221	Pendleton	1495	456	Green Bay	702	214
Denver	5332	1625	MINNESOTA			Portland	39	12	Lacrosse	672	205
Grand Junction	4839	1475	Duluth	1417	432	Salem	201	61	Madison	866	264
Pueblo	4720	1439	International Falls	1183	361	Sexton Summit	R 3841	1171	Milwaukee	693	211
CONNECTICUT			Minneapolis	838	255	PACIFIC AREA			WYOMING		
Bridgeport	17	5	Rochester	1320	402	Guam Taguac	R 365	111	Casper	5290	1612
Hartford	179	55	St. Cloud	1043	318	Johnston	17	5	Cheyenne	6141	1872
DELAWARE			MISSISSIPPI			Korer	R 109	33	Lander	5558	1694
Wilmington	80	24	Jackson	331	101	Kwajalein	26	8	Sheridan	3968	1209
DISTRICT OF COLUMBIA			Meridian	310	94	Manito	10	3			
Wash. Dulles Int. AP	323	98	MISSOURI			Pago Pago	10	3			
Wash. Nat'l AP	65	20	Columbia, Regional	898	274	Ponape	R 151	46			
FLORIDA			Kansas City	750	229	Truk Moen Island	8	2			
Apalachicola	U 35	11	St. Joseph	817	249	Wake Island	R 50	17			
Daytona Beach	41	12	St. Louis	564	172	PENNSYLVANIA					
Fort Myers	12	4	Springfield	1270	387	Allentown	385	117			
Jacksonville	31	9	MONTANA			Erie	737	225			
Key West	21	6	Billings	3570	1088	Harrisburg	351	107			
Lakeland	U 236	72	Bozeman	2298	700	Philadelphia	28	9			
Miami	12	4	Great Falls	3657	1115	Pittsburgh	1225	373			
Orlando	119	36	Harvey	2599	792	Pittsburgh	U 1017	334			
Pensacola	118	36	Helena	3898	1188	Saratoga	948	289			
Tallahassee	68	21	Kalamazoo	2973	906	Williamsport	525	160			
Tampa	11	3	Miles City	2674	803	RHODE ISLAND					
West Palm Beach	21	6	Missoula	3189	972	Block Island	118	36			
GEORGIA			NEBRASKA			Providence	62	19			
Athens	811	247	Grand Island	1896	566	SOUTH CAROLINA					
Atlanta	1084	330	Lincoln	1189	362	Charleston	48	15			
Augusta	188	45	North Platte	2787	849	Columbia	225	69			
Columbus	394	120	Omaha	982	299	Grand-Stratford	971	296			
Macon	362	110	Scottsbluff	3958	1206	SOUTH DAKOTA					
Rome	643	196	Valentine	2598	792	Aberdeen	1300	396			
Savannah	51	16				Huron	1289	393			
HAWAII						Rapid City	4008	966			
Hilo	36	11				Sioux Falls	1427	435			
Honolulu	40	12									
Kaunaloa	67	20									
Lihue	118	36									

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

These are the elevations of the barometer (in feet and meters above mean sea level) to which station pressure values pertain in the

1950-1951 Data Table in the monthly publication CLIMATOLOGICAL DATA NATIONAL SUMMARY.



# GENERAL SUMMARY OF TORNADES, 1978

HENRY N. VIGANSKY  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
ENVIRONMENTAL DATA AND INFORMATION SERVICE  
NATIONAL CLIMATIC CENTER

A total of 788 tornadoes was reported in the United States during 1978. Property damage was estimated in excess of \$600 million. Tornadoes occurred on 173 days, caused 53 fatalities and 937 injuries. The 53 deaths were attributable to 17 of the tornadoes. Only eight states did not record a tornado and these were Alaska, Connecticut, Delaware, Nevada, New Jersey, Rhode Island, Utah and Vermont. Tornadoes damaged or destroyed approximately 1,200 mobile homes during 1978 with 171 associated injuries and 15 associated deaths.

New monthly records of occurrences by state and nation, location of killer tornadoes, and state to state border crossings are shown in the following three tables:

## NEW MONTHLY TORNADO RECORDS

<u>Month</u>	<u>State</u>	<u>New Record</u>	<u>Previous Record</u>
January	Arkansas	5	4 (1957)
	Florida	11	8 (1973)
	Virginia	2	1 (1975)
February	Arizona	2	1 (1969)
March	California	9	2 (1958)
May	New York	3	2 (1972)
	Wyoming	11	3 (1962)
July	United States	143	121 (1958)
	Iowa	12	6 (1972)
	Montana	8	5 (1965)
	Washington	2	0
	Wyoming	7	5 (1976)
August	Arkansas	4	3 (1964)
	Pennsylvania	5	4 (1970)
December	Arkansas	10	4 (1971)

## KILLER TORNADES

<u>Date</u>	<u>State</u>	<u>County</u>	<u>Total Deaths</u>
January 7	Arkansas	Cross	1
	Virginia	Stafford	1
April 18	Mississippi	Lawrence	4
May 4	Florida	Pinellas	3
	Texas	Hall	1
	Kansas	Jackson	3
June 17	Kansas	Osage	16
	Illinois	Will	1
July 4	North Dakota	Grant	5
	Minnesota	Norman	3
		Polk	1
	Pennsylvania	Armstrong	1
	North Carolina	Dare	1
August 29	Mississippi	Copiah	1
September 16	Iowa	Poweshiek	4
		Marshall	2

# GENERAL SUMMARY OF TORNADOES

December	3	Arkansas	Union	1
	3	Louisiana	Bossier	2
	3	Louisiana	Webster	2

## STATE BORDER CROSSINGS

May 1	Alabama	into	Georgia
May 8	Georgia	into	South Carolina
June 26	Colorado	into	Kansas
August 28	Pennsylvania	into	Maryland
September 15	Texas	into	Louisiana
December 3	Louisiana	into	Arkansas

Some of the most severe or unusual tornadoes are described briefly in the following paragraphs:

On January 4, the first tornado of the season touched down momentarily near San Damis, California, causing minor roof damage.

At 3:32 p.m. on January 7, the first killer tornado of the year touched down 5 miles (8.0 km) west-southwest of Hunter, Arkansas, and moved northeastward to a location one mile (1.6 km) west of Parkin, Arkansas. The storm destroyed numerous farm homes and outbuildings before moving through a mobile home park 2 miles (3.2 km) south of Wynne where 8 injuries and one fatality were recorded. Damage in the Wynne area included destruction of 28 mobile homes and 8 frame houses, 22 mobile homes damaged, and 12 vehicles destroyed. Along the 41 mile (66.0 km) path, property damage was estimated at over \$1.1 million.

During the period from 11 p.m., April 17, to 2 a.m., April 18, six tornadoes ripped through 11 counties in south-central Mississippi, destroying and/or damaging numerous homes. One tornado dipped into northwest Clairborne County destroying several homes and causing extensive damage at the construction site of the Grand Gulf Nuclear Plant, where 2 people were injured. At about 12:30 a.m. on April 18, another twister touched down near the town of Monticello, killing 4 people and injuring 31 others.

On May 4, at 10:47 a.m., a tornado touched down in High Point, Florida, and caused 3 deaths and 95 injuries. The tornado destroyed 6 classrooms of the High Point Elementary School, burying many children and their teachers. The 3 deaths and most of the injured were students at the High Point Elementary School. Fortunately, the storm hit when most of the children were in the cafeteria, located on the opposite side of the building. The tornado moved across the street and did considerable damage to a mobile home park. Witnesses reported seeing a three-quarter ton pickup truck hurled 40 feet (12 m) into the air and landing on top of another vehicle. Civil Defense officials estimated the damage as follows: \$3.1 million to the high school and maintenance buildings; 67 mobile homes destroyed or damaged, \$137,500; damage to the Florida Power Company and General Telephone, \$175,000.

At about 7:15 p.m., on June 17, a mini-tornado touched down about 4 miles (6.4 km) north-northeast of Lyndon, Kansas and traveled along an 8 mile (12.9 km) course, to just south of Michigan Valley, Kansas. When passing over Lake Pomona, the tornado overturned the showboat Whippoorwill, which resulted in 16 deaths and 3 injuries. Although classified as a mini-tornado, it ranks 13th in a list of the 50 historical Kansas tornadoes which have caused the greatest number of deaths.

On July 4, at about 8:30 p.m., a killer tornado touched down one mile (1.6 km) west of Elgin, North Dakota, and traveled northeast through the town of Elgin, destroying three homes, six mobile homes and a six unit apartment complex. Forty other homes sustained minor damage. Five fatalities and 35 injuries were reported. This same storm system was responsible for another tornado that touched down during the early morning hours of July 5, in Perley, Minnesota. The tornado moved northeastward leaving a 75 mile (120.7 km) path of destruction between Perley and Clearbrook, Minnesota. The counties of Mahanomen, Norman, and Polk were declared major disaster areas. Four people were killed and 38 were injured, 16 who required hospitalization. Two hundred and sixty homes were damaged or destroyed leaving over 100 people homeless, and about 250 farm buildings were destroyed.

At 12:30 p.m. on July 31, a giant waterspout/tornado came ashore just east of the Wright Brothers Memorial at Kill Devil Hills, North Carolina. One woman was killed and four people received minor injuries. Property damage was estimated in excess of \$600,000.

During the pre-dawn hours of December 3, three tornadoes created havoc throughout northern Louisiana. Bossier Parish was hit by the most destructive of the three tornadoes. In Bossier City, the storm demolished scores of businesses, lodging and apartment complexes, and residential homes. Damage was estimated at more than \$100 million. Two sisters were killed when an automobile was thrown into the

## GENERAL SUMMARY OF TORNADOES

bedroom where they were sleeping. Two hundred and sixty-six people were injured and 1,500 were left homeless. The second of the three storms traveled 60 miles (96.6 km) through Webster, Clairborne, and Union Parishes. Luckily, this tornado traveled exclusively through wooded areas; therefore, no deaths or injuries resulted. The third tornado touched down approximately 15 miles (24.1 km) south of Minden, Louisiana and caused major damage to numerous frame houses and mobile homes. Two men were killed and four people were injured. The same storm system spawned 10 tornadoes in Arkansas, leaving 93 miles (149.7 km) of destruction estimated at \$2.2 million. One woman was killed and seven other people were injured.

The 1978 tornado season ended on New Year's Eve at 1:45 p.m. when a tornado touched down in the Lightfoot Community, in Lauderdale County, Tennessee. The twister skipped across Lauderdale County, uprooting trees and over turning mobile homes, injuring one person.

Additional tornado information is presented in the following tables and charts. More detailed information about tornadic activity can be obtained from the monthly Storm Data publications.



# TORNADO SUMMARY 1978

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
ALABAMA													
Number				8	6	3	1					4	22
Days				2	4	3	1					1	11
Deaths													0
Injuries				33	15							1	49
ALASKA													
(None)													
Number													
Days													
Deaths													
Injuries													
ARKANSAS													
Number				1	5	10	6	4	4			10	45
Days				1	2	3	5	4	3			1	20
Deaths													1
Injuries				1	10	4		3				7	34
CALIFORNIA													
Number													
Days													
Deaths													
Injuries													
CONNECTICUT													
(None)													
DELAWARE													
(None)													
DISTRICT OF COLUMBIA													
(None)													
FLORIDA													
Number													
Days													
Deaths													
Injuries													
GEORGIA													
Number													
Days													
Deaths													
Injuries													
HAWAII													
Number													
Days													
Deaths													
Injuries													
IDAHOW													
Number													
Days													
Deaths													
Injuries													
ILLINOIS													
Number													
Days													
Deaths													
Injuries													
INDIANA													
Number													
Days													
Deaths													
Injuries													
IOWA													
Number													
Days													
Deaths													
Injuries													
KANSAS													
Number													
Days													
Deaths													
Injuries													
KENTUCKY													
Number													
Days													
Deaths													
Injuries													
LOUISIANA													
Number													
Days													
Deaths													
Injuries													
MAINE													
Number													
Days													
Deaths													
Injuries													
MARYLAND													
Number													
Days													
Deaths													
Injuries													
MASSACHUSETTS													
Number													
Days													
Deaths													
Injuries													
MICHIGAN													
Number													
Days													
Deaths													
Injuries													
MINNESOTA													
Number													
Days													
Deaths													
Injuries													
MISSISSIPPI													
Number													
Days													
Deaths													
Injuries													
MISSOURI													
Number													
Days													
Deaths													
Injuries													

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MM*
MONTANA													
Number						3	8	2					
Days						2	4	1					
Deaths													
Injuries													
NEBRASKA													
Number				3	16	7	2	2	2				8
Days				3	5	4	6	1	2				4
Deaths													0
Injuries				1		8							4
NEVADA													
(None)													
NEW HAMPSHIRE													
Number						2	1						18
Days						2							15
Deaths													0
Injuries													15
NEW JERSEY													
(None)													
NEW MEXICO													
Number						1	1						137
Days						1	1						59
Deaths													1
Injuries													0
NEW YORK													
Number						3	2	1	2				
Days						1	1	2					
Deaths													
Injuries													
NORTH CAROLINA													
Number	1												5
Days	1												4
Deaths													1
Injuries													13
NORTH DAKOTA													
Number						9	8	13	4	1			4
Days						3	4	7	3	1			4
Deaths													0
Injuries													0
OHIO													
Number													
Days													
Deaths													
Injuries													
OKLAHOMA													
Number													
Days													
Deaths													
Injuries													
OREGON													
Number													
Days													
Deaths													
Injuries													
PACIFIC													
(None)													
PENNSYLVANIA													
Number													788*
Days													173
Deaths													53
Injuries													937

\* Corrected for boundary-crossing tornadoes.

† Tornado Days for Country as a whole.

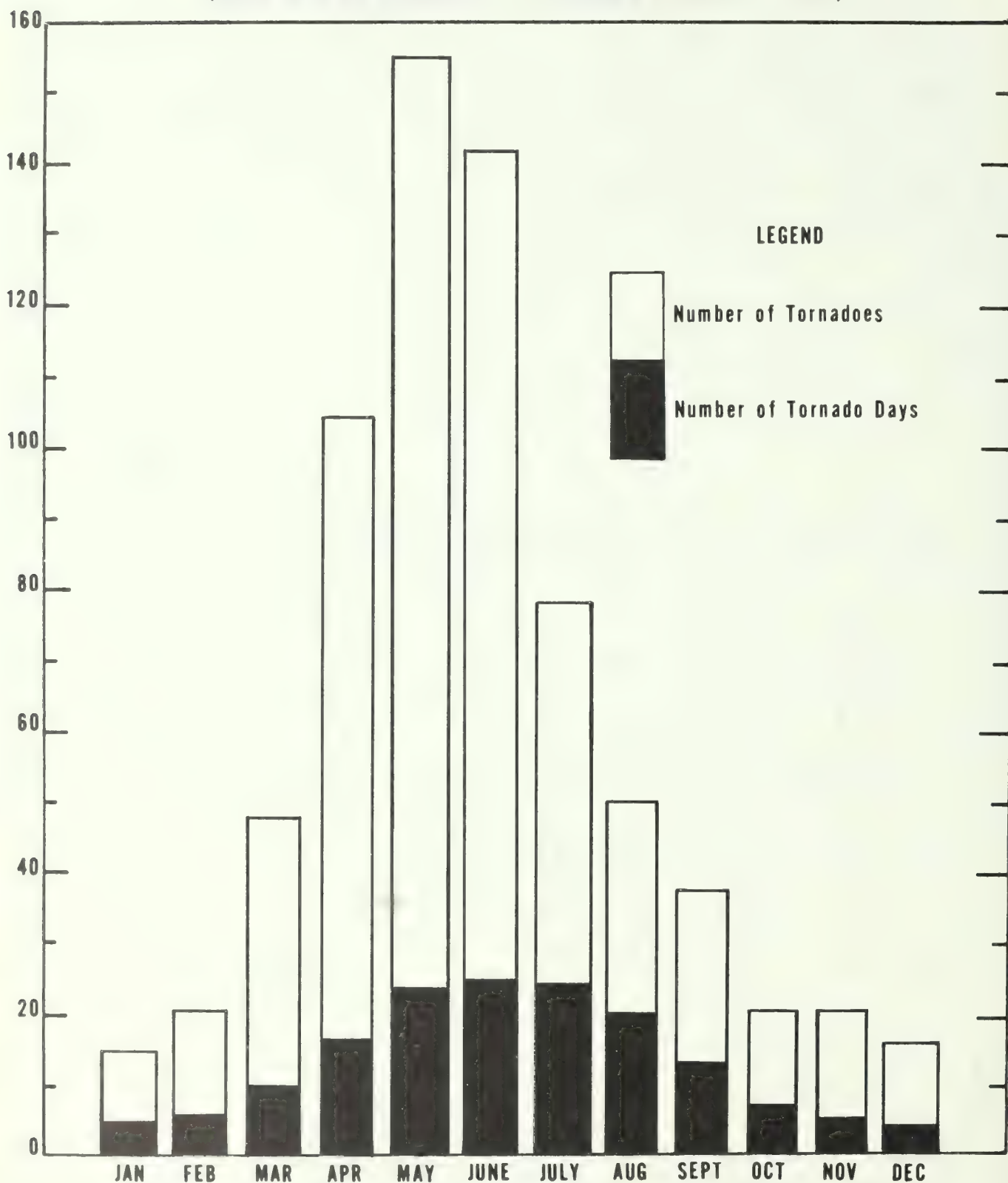
NUMBER OF TORNADES, TORNADO DAYS, AND DEATHS BY MONTHS, 1953-1978

YEAR	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		TOTAL		TOTAL									
	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS	NUMBER	DEATHS								
1953	14	6	16	3	47	16	34	94	21	191	111	24	244	31	19	0	24	15	0	5	4	0	6	4	0	12	6	0	21	8	49	421	156	515		
1954	2	1	17	9	112	22	3	101	22	9	107	26	5	45	23	0	49	21	1	21	10	3	14	8	2	2	2	0	17	3	1	550	160	36		
1955	3	2	4	3	43	15	5	99	18	7	147	28	2	49	21	5	33	18	0	15	8	2	23	7	1	3	2	0	3	2	0	593	152	126		
1956	2	2	47	12	8	31	7	1	85	15	4	65	21	0	91	26	1	43	20	2	16	10	0	29	8	0	7	6	0	9	4	0	504	155	83	
1957	17	3	13	5	216	21	29	227	26	87	147	75	14	55	19	0	20	14	0	17	10	2	18	11	2	56	11	25	38	4	19	856	154	192		
1958	12	7	20	5	76	19	4	68	21	0	127	27	42	121	30	1	46	20	1	24	14	1	9	6	4	45	6	0	1	1	0	564	166	66		
1959	16	4	20	5	30	12	1	226	28	8	73	25	2	63	24	0	38	18	0	58	15	14	24	10	6	11	4	0	2	2	0	604	156	58		
1960	9	4	18	10	70	20	7	201	26	34	124	27	3	43	22	0	47	23	1	22	13	0	18	10	1	25	6	0	1	1	0	616	172	46		
1961	1	1	6	31	8	0	124	17	7	74	19	3	137	25	23	107	23	0	27	16	0	53	16	15	14	5	0	36	7	1	16	5	0	697	169	51
1962	12	3	1	25	7	41	8	1	200	22	3	171	29	0	78	26	0	51	21	6	24	11	0	11	10	0	5	4	0	2	2	0	657	152	28	
1963	15	3	1	6	8	14	16	71	21	1	91	23	0	62	26	0	26	13	2	33	13	3	13	8	0	18	6	0	1	0	0	464	161	31		
1964	14	3	10	2	157	23	15	135	20	16	136	24	0	63	23	0	79	23	2	25	14	0	21	4	22	17	8	0	18	5	2	704	156	73		
1965	21	11	0	32	129	20	284	275	25	17	147	28	6	86	26	0	61	23	1	64	21	0	16	4	1	34	6	8	7	4	0	906	181	296		
1966	1	1	0	28	80	20	12	98	17	0	126	28	19	100	27	3	58	21	0	22	13	0	29	6	6	20	3	0	11	3	0	585	150	98		
1967	39	4	7	8	149	18	73	116	25	3	210	28	6	90	25	1	28	16	2	139	16	5	36	7	4	8	5	0	61	10	10	926	173	114		
1968	5	3	0	7	102	15	40	145	26	72	136	27	11	56	22	2	66	23	2	25	14	0	14	9	0	44	12	3	32	9	1	680	171	131		
1969	3	1	32	5	68	15	2	145	25	4	137	28	7	99	27	0	69	21	19	20	11	0	26	16	0	5	3	0	23	7	1	608	155	66		
1970	9	5	0	16	117	16	79	88	19	26	134	24	6	81	26	3	55	21	0	54	20	0	50	13	6	10	4	0	14	8	0	653	171	72		
1971	18	7	1	83	17	131	40	13	2	75	14	11	166	24	7	199	28	1	50	21	0	47	15	0	38	12	0	16	7	0	86	9	2	888	192	156
1972	53	10	5	7	96	20	16	140	27	0	114	25	2	115	29	0	59	23	2	49	19	0	34	16	0	18	4	2	6	6	0	741	194	27		
1973	33	7	1	10	150	22	10	250	26	35	224	26	2	80	26	0	51	23	4	69	22	3	25	11	0	45	10	4	13	8	0	1102	206	87		
1974	24	8	2	23	269	22	313	144	28	10	194	26	31	59	19	0	107	26	0	25	11	0	45	10	4	13	8	0	8	5	0	947	184	161		
1975	52	7	12	45	12	86	16	12	108	20	13	188	30	5	196	28	6	79	26	2	34	17	0	12	7	0	40	8	0	22	8	1	920	204	60	
1976	12	5	0	37	6	5	180	18	21	113	23	1	155	24	8	169	26	3	38	18	1	35	15	3	11	5	0	0	0	1	1	0	835	169	44	
1977	5	4	0	17	88	15	0	88	15	26	228	29	4	132	27	1	82	26	6	65	21	1	25	5	1	24	10	0	23	7	2	852	169	43		
1978	23	7	2	6	107	17	4	213	27	7	148	28	17	143	30	11	65	24	1	20	10	6	7	5	0	9	5	0	30	9	5	788	173	53		
53-78																																				
TOTAL	395	119	80	565	2742	444	1001	4037	634	647	3679	679	431	2049	654	33	1332	533	55	981	359	58	569	202	54	574	156	49	473	135	96	18661	4361	2913		
MEAN	15	5	3	21	6	7	49	11	8	105	18	39	155	24	25	142	26	17	79	25	1	51	21	2	38	14	2	22	6	2	18	5	4	717	169	112



# AVERAGE NUMBER OF TORNADOES AND TORNADO DAYS EACH MONTH IN THE UNITED STATES

(BASED ON 18,641 TORNADOES THAT OCCURRED FROM 1953 - 1978)



# NUMBER OF TORNADOES, TORNADO DAYS, DEATHS, AND RESULTING LOSSES BY YEARS, 1916 - 78

YEAR	Number Tornadoes	Tornado Days	Total Deaths	Most Deaths in Single Tornado	Total Property Losses †	PROPERTY LOSS FREQUENCY*		
						Category 5	Category 6	Category 7 and Over
1916	90	36	150	30	6	7	1	0
1917	121	38	551	101	7	21	9	0
1918	81	45	136	36	7	20	5	0
1919	64	35	206	59	7	10	2	0
1920	87	50	499	87	7	14	10	0
1921	105	55	202	61	7	22	3	0
1922	108	64	135	16	7	27	5	0
1923	102	59	110	23	6	21	1	0
1924	130	57	376	85	7	26	11	1
1925	119	65	794	689	7	34	2	1
1926	111	57	144	23	6	28	0	0
1927	163	62	540	92	7	42	9	1
1928	203	79	95	14	7	40	7	0
1929	197	74	274	40	7	48	4	0
1930	192	72	179	41	7	38	6	0
1931	94	57	36	6	6	14	1	0
1932	151	67	394	37	7	23	1	1
1933	258	96	362	34	7	46	9	0
1934	147	77	47	6	6	10	3	0
1935	180	77	71	11	6	29	0	0
1936	151	71	552	216	7	17	5	1
1937	147	75	29	5	6	24	0	0
1938	213	76	183	32	7	29	6	0
1939	152	75	91	27	7	21	3	0
1940	124	62	65	18	7	13	2	0
1941	118	57	53	25	6	24	1	0
1942	167	66	384	65	7	42	10	0
1943	152	61	58	5	7	28	8	0
1944	169	68	275	100	7	50	9	0
1945	121	66	210	69	7	21	10	1
1946	106	65	78	15	7	29	7	0
1947	165	78	313	169	7	46	7	1
1948	183	68	139	33	7	62	11	2
1949	249	80	211	58	7	54	13	0
1950	200	88	70	18	7	47	9	0
1951	262	113	34	6	7	35	11	2
1952	240	98	229	57	7	53	19	0
1953	421	136	515	116	8	63	18	7
1954	550	160	36	6	7	63	8	1
1955	593	152	126	80	7	74	13	1
1956	504	155	83	25	7	83	24	1
1957	856	154	192	44	8	129	26	3
1958	564	166	66	19	7	70	8	1
1959	604	156	58	21	7	70	4	1
1960	616	172	46	16	7	65	11	1
1961	697	169	51	16	7	103	21	1
1962	657	152	28	17	7	51	10	0
1963	464	141	31	5	7	77	15	1
1964	704	156	73	22	7	113	17	5
1965	906	181	296	44	8	126	30	11
1966	585	150	98	58	8	79	13	4
1967	926	173	114	33	8	125	33	8
1968	660	171	131	34	8	82	26	6
1969	608	155	66	32	8	98	16	3
1970	653	171	72	26	8	97	24	6
1971	888	192	156	58	8	71	30	5
1972	741	194	27	6	8	100	28	1
1973	1102	206	87	7	9	219	67	9
1974	947	184	361	34	9	166	82	25
1975	920	204	60	9	9	189	31	11
1976	835	169	44	5	8	145	41	5
1977	852	189	43	22	8	173	40	6
1978	788	173	53	16	9	153	53	6
Means: 1953-78	717	169	112	---	---	107	27	5

NOTE: -- The above estimated losses are based on values at time of occurrence.

† Storm damages in categories:

5. \$50,000 to \$500,000

6. \$500,000 to \$5 million

7. \$5 million to \$50 million

8. \$50 million to \$500 million

9. \$500 million and over.

\*Number of times property losses reported in Storm Data in Categories 5, 6, 7 and over.

# NUMBER OF TORNADES, TORNADO DAYS, AND DEATHS BY STATES, 1953-78

STATE	TORNADES							DAYS		DEATHS		
	TOTAL	AVER AGE	GREAT EST	YEAR	LEAST	YEAR	Per # 10,000 Sq. Mi	TOTAL	AVER AGE	TOTAL	AVER AGE	Per @ 10,000 Sq. Mi
Alabama	513	20	45	1973+	5	1973+	3.82	278	11	202	8	39
Alaska	1	0	1	1959	0	1978+	.00	1	0	0	0	0
Arizona	96	4	17	1972	0	1965+	.32	79	3	3	0	0
Arkansas	507	20	50	1973	2	1969	3.67	267	10	120	5	23
California	84	3	13	1978	0	1968+	.20	61	2	0	0	0
Colorado	398	15	42	1976	1	1959	1.47	264	10	2	0	0
Connecticut	40	2	8	1973	0	1978+	3.07	36	1	1	0	2
Delaware	24	1	5	1975	0	1978+	4.49	22	1	0	0	0
District of Columbia	0	0	0	-	0	1978+	.00	0	0	0	0	0
Florida	1006	39	97	1975	10	1956	6.61	659	25	50	2	9
Georgia	542	21	46	1971+	7	1960	3.54	315	12	72	3	12
Hawaii	16	1	4	1971	0	1977+	.96	13	1	0	0	0
Idaho	35	1	5	1967+	0	1977	.16	27	1	0	0	0
Illinois	724	28	107	1974	4	1953	4.94	331	13	129	5	23
Indiana	589	23	48	1973	6	1972+	6.24	281	11	199	8	55
Iowa	674	26	54	1964	7	1956+	4.61	318	12	47	2	8
Kansas	1165	45	97	1955	14	1976	5.45	537	21	162	6	20
Kentucky	206	8	34	1974	0	1953	1.96	114	4	98	4	24
Louisiana	521	20	55	1974	3	1955	4.13	326	13	86	3	18
Maine	70	3	11	1971	0	1964+	.81	62	2	1	0	0
Maryland	67	3	10	1975	0	1970+	2.44	58	2	1	0	1
Massachusetts	105	4	12	1958	0	1959	4.89	76	3	97	4	117
Michigan	403	16	39	1974	2	1959	2.66	235	9	226	9	39
Minnesota	428	16	34	1968	5	1972	1.96	264	10	73	3	9
Mississippi	577	22	44	1973	5	1964	4.65	310	12	314	12	66
Missouri	742	29	79	1973	6	1953	4.10	355	14	120	5	17
Montana	104	4	13	1978	0	1974+	.27	78	3	0	0	0
Nebraska	927	36	78	1975	10	1966	4.62	459	18	44	2	6
Nevada	16	1	4	1964	0	1978+	.06	15	1	0	0	0
New Hampshire	59	2	9	1963	0	1977+	2.44	53	2	0	0	0
New Jersey	41	2	8	1973	0	1978+	2.01	33	1	0	0	0
New Mexico	216	8	18	1972	0	1953	.68	161	6	3	0	0
New York	93	4	8	1978+	0	1953	.72	78	3	2	0	0
North Carolina	302	12	38	1973	2	1970	2.20	189	7	22	1	4
North Dakota	419	16	52	1976	2	1961	2.28	245	9	21	1	3
Ohio	363	14	43	1973	3	1966	3.39	199	8	147	6	36
Oklahoma	1401	54	107	1957	21	1978	7.71	591	23	170	7	24
Oregon	24	1	3	1975+	0	1977+	.10	20	1	0	0	0
Pacific	1	0	1	1975	0	1978+	.00	1	0	0	0	0
Pennsylvania	187	7	23	1976	0	1959	1.59	138	5	7	0	2
Puerto Rico	7	0	2	1969	0	1978+	.79	6	0	0	0	0
Rhode Island	1	0	1	1972	0	1978+	.32	1	0	0	0	0
South Carolina	238	9	23	1973	1	1970+	2.95	165	6	24	1	8
South Dakota	600	23	64	1965	1	1959	3.00	306	12	7	0	1
Tennessee	292	11	44	1974	1	1962	2.66	157	6	72	3	17
Texas	3035	117	232	1967	32	1953	4.37	1267	49	316	12	12
Utah	32	1	5	1970+	0	1978+	.15	25	1	0	0	0
Vermont	25	1	5	1962	0	1978+	1.00	21	1	0	0	0
Virginia	145	6	22	1975	1	1963	1.37	104	4	15	1	4
Virgin Islands	1	0	1	1976	0	1978+	.00	1	0	0	0	0
Washington	28	1	4	1978+	0	1977+	.16	22	1	6	0	1
West Virginia	50	2	6	1974	0	1960+	.80	40	2	1	0	0
Wisconsin	442	17	33	1964	3	1953	3.03	250	10	52	2	9
Wyoming	197	8	24	1976	0	1970	.77	149	6	1	0	0
TOTAL: UNITED STATES	*18641	717	1102	1973	421	1953	1.98	† 4381	169	2913	112	8

+ Also in earlier year(s).

\* Corrected for boundary-crossing tornadoes

† Tornado Days for Country as a whole.

# Mean annual tornadoes per 10,000 square miles.

@ Number of deaths per 10,000 square miles -- 1953-78



# NUMBER OF FUNNEL CLOUDS 1978

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
Alabama				2		1		1					4
Alaska							2						2
Arizona							1					5	6
Arkansas	4			12	16	9	9	2				2	54
California		8	8	4									20
Colorado					3	9	6						18
Connecticut													0
Delaware													0
District of Columbia													0
Florida	6		4	2	28	29	22	6	8	9	2		116
Georgia													0
Hawaii	2	2	1	1	2				2		1		11
Idaho				1				1	7				9
Illinois													0
Indiana				2	3	5	23	4	2	1	2		42
Iowa					2	8			1				11
Kansas				5	40	8	5	4					62
Kentucky				1									1
Louisiana	1					2	2	4				2	11
Maine													0
Maryland													0
Massachusetts						5							5
Michigan				2	9	7	2	10	2	1			33
Minnesota				2	19	13	14	16	1	1			66
Mississippi								5			1		6
Missouri													0
Montana						4	5						9
Nebraska				6	10	20	13	5	1				55
Nevada													0
New Hampshire													0
New Jersey						2							2
New Mexico					2	12							14
New York							1						1
North Carolina				7		2	1	1	3				14
North Dakota					2	28	51	9					90
Ohio						7	1						8
Oklahoma				13	18	11							42
Oregon				1									1
Pacific				1			2						3
Pennsylvania										1			1
Puerto Rico													0
Rhode Island													0
South Carolina						2							2
South Dakota					7	8	12	1					28
Tennessee													0
Texas			2	14	50	41	23	8	20	3		1	162
Utah													0
Vermont													0
Virginia						7							7
Virgin Islands													0
Washington						2		3					5
West Virginia						3	4	1					8
Wisconsin						3	2	6					11
Wyoming						3	3						6
United States	13	10	15	76	211	251	204	87	47	16	6	10	946

# TRACKS OF TORNADOES, 1978



# GENERAL SUMMARY OF LIGHTNING, 1978

Henry N. Vigansky  
National Oceanic and Atmospheric Administration  
Environmental Data and Information Service  
National Climatic Center

The following lightning statistics were derived from the monthly Storm Data publication, published by the National Climatic Center, Asheville, North Carolina. These tables are subject to change upon receipt of later and more detailed information. Additional information may be obtained from the following sources:

1. Mogil, H. M., M. Rush and M. Kuta, 1977: Lightning -- A Preliminary Reassessment, Weatherwise, 30, 192-200.
2. Zegel, F. H. 1967: Lightning Deaths in the United States: A Seven-Year Survey from 1959 to 1965, Weatherwise, 20, 168-173, 179.



# LIGHTNING FATALITIES, 1978

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
Alabama						1							1
Alaska													0
Arizona						1		1					2
Arkansas						2	3	1					6
California													0
Colorado					2		1	2					5
Connecticut						1							1
Delaware								1					1
District of Columbia													0
Florida				1		3	2	2	1			1	10
Georgia													0
Hawaii													0
Idaho													0
Illinois							1			1			2
Indiana						1							1
Iowa						1		1					2
Kansas													0
Kentucky						1	2						3
Louisiana							1						1
Maine													0
Maryland								2					2
Massachusetts								1	1				2
Michigan						1							1
Minnesota								2					2
Mississippi							1						1
Missouri					1	1	2		1				5
Montana						1	1						2
Nebraska					1			1					2
Nevada													0
New Hampshire													0
New Jersey													0
New Mexico							1						1
New York						2	1						3
North Carolina			1			2	2						5
North Dakota								1					1
Ohio						5	1	2					8
Oklahoma						2		1					3
Oregon					1								1
Pacific													0
Pennsylvania							1						1
Puerto Rico													0
Rhode Island													0
South Carolina							2	1					3
South Dakota													0
Tennessee					2								2
Texas					1			1					2
Utah													0
Vermont							1						1
Virginia					1			2					3
Virgin Islands													0
Washington													0
West Virginia							1						1
Wisconsin						1							1
Wyoming													0
TOTAL:	0	0	1	1	9	26	24	22	3	1	0	1	88

# LIGHTNING INJURIES, 1978

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
Alabama					1								1
Alaska													0
Arizona								1					1
Arkansas				2	2	1	4	5	2				16
California													0
Colorado						1	2	3					6
Connecticut						13		1					14
Delaware						7		1					8
District of Columbia													0
Florida					1	33	8	3		2			47
Georgia							1			1			2
Hawaii													0
Idaho							2						2
Illinois						1	3						4
Indiana							1						1
Iowa						9	10	3					22
Kansas							1	1	2				4
Kentucky							6						6
Louisiana					1	2		1					4
Maine					2		1						3
Maryland						1		2					3
Massachusetts									16				16
Michigan					3	1	7	8	4				23
Minnesota						3		1					4
Mississippi								2					2
Missouri				1	1	2							4
Montana							2						2
Nebraska							1		1				2
Nevada													0
New Hampshire						2							2
New Jersey													0
New Mexico													0
New York									5				5
North Carolina			5		1	7	4	8	1				26
North Dakota								1					1
Ohio						8		2	3				13
Oklahoma					1	1		1	4				7
Oregon					1	1							2
Pacific													0
Pennsylvania						8	7	3	4	2			24
Puerto Rico													0
Rhode Island								3					3
South Carolina							1	1					2
South Dakota													0
Tennessee					3		3	1					7
Texas					1		1						2
Utah													0
Vermont							2						2
Virginia					1			1					2
Virgin Islands													0
Washington							5	1					6
West Virginia													0
Wisconsin													0
Wyoming							1						1
TOTAL:	0	0	5	3	19	101	73	54	42	5	0	0	302

# LIGHTNING FATALITIES AND INJURIES BY YEAR, 1959-78

## LIGHTNING FATALITIES

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
1959	1		1	4	18	22	48	40	13	7			154
1960			1	7	7	35	25	17	9				101
1961			1	2	9	23	47	20	10	1			113
1962			3	6	28	20	26	27	9	1			120
1963			4	3	11	36	43	21	10	2		81	211
1964			9	6	15	21	29	19	7	1	1		108
1965			2	4	12	32	39	27	6	2			124
1966			1	1	8	15	21	17	11	3			77
1967	1		1	2	3	26	21	14	1	2	1	1	73
1968				1	5	24	30	29	9	3		2	103
1969			1	5	13	15	29	13	14	3			93
1970				1	17	25	27	19	21	1			111
1971			2	1	12	27	33	19	19				113
1972			1	1	5	21	31	29	3	1			92
1973		1	2	3	11	24	32	19	13	2	3		110
1974		2		7	13	20	28	24	6		2		102
1975		1	3	3	11	19	28	18	6	2			91
1976				1	9	19	20	20	3	2			74
1977				4	9	18	16	35	14	1			97
1978			1	1	9	26	24	22	3	1		1	88
TOTAL	2	4	33	63	225	468	597	449	187	35	7	85	2,155
Average	0	0	2	3	11	23	30	22	9	2	0	4	108

## LIGHTNING INJURIES

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
1959				5	27	49	110	100	23	3	1	1	319
1960			1	12	12	73	25	49	16	9	4		201
1961			7	14	15	41	83	50	31	5	1	1	248
1962			3	5	40	34	88	48	12	6			236
1963	7		2	5	12	62	55	44	18	1			206
1964			10	14	14	39	99	54	8	1	1		240
1965	3	2	2	4	26	42	59	59	19	1			217
1966		2	1	2	37	39	42	44	15	1			183
1967				4	7	35	59	33	4	2		1	145
1968			4	2	16	52	116	155	14	9	1		369
1969				4	19	74	40	23	12			1	173
1970			1	5	40	40	82	43	43	4	1		259
1971		1		1	24	72	79	54	22	1	1		255
1972			8	4	12	24	72	54	15	2	1		192
1973			10	1	20	21	72	62	30	9	2		227
1974	1	9	1	3	13	27	54	47	13	1			169
1975	4	3		1	20	59	104	157	43	1		1	393
1976		1		5	15	38	78	68	13	1		1	220
1977				4	35	58	58	67	62	4	4		292
1978			5	3	19	101	73	54	42	5			302
TOTAL	15	18	55	98	423	980	1,448	1,265	455	66	17	6	4,846
Average	1	1	3	5	21	49	72	63	23	3	1	0	242



## HAILSTORMS LOSSES FOR PAST YEARS

Year	Property (exclusive of crops)	Crops	Total	Year	Property (exclusive of crops)	Crops	Total
1933	-	-	7	1959	6	7	7
1931	-	-	7	1960	7	8	8
1935	-	-	7	1961	8	8	8
1936	6	7	7	1962	8	8	8
1937	6	7	7	1963	8	8	8
1938	6	7	7	1964	8	8	8
1939	6	6	6	1965	8	8	8
1940	6	7	7	1966	8	8	8
1941	6	7	7	1967	8	8	8
1942	6	7	7	1968	8	8	8
1943	6	7	7	1969	8	8	8
1944	7	7	8	1970	8	8	8
1945	6	7	7	1971	7	8	8
1946	7	7	7	1972	7	8	8
1947	6	8	8	1973	7	7	8
1948	7	8	8	1974	7	7	8
1949	7	7	7	1975	7	8	8
1950	7	7	7	1976	7	8	8
1951	7	7	8	1977	7	8	8
1952	7	7	8	1978	8	8	8
1953	7	7	7				
1954	7	8	8				
1955	7	7	8				
1956	7	8	8				
1957	7	8	8				
1958	7	8	8				

\* Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50	4 \$5,000 to \$50,000	7 \$5 million to \$50 million
2 \$50 to \$500	5 \$50,000 to \$500,000	8 \$50 million to \$500 million
3 \$500 to \$5,000	6 \$500,000 to \$5 million	9 \$500 million to \$5 billion.

NOTE.--The above estimated losses are based on values at time of occurrence.

## WINDSTORM LOSSES PAST YEARS

(Windstorms other than tornadoes)

Year	Total loss of life	Total property loss	Year	Total loss of life	Total property loss
1916	65	7	1951	289	8
1917	25	6	1952	137	8
1918	79	7	1953	118	8
1919	344	7	1954	292	9
1920	42	6	1955	301	8
1921	65	7	1956	196	8
1922	133	7	1957	553	8
1923	68	7	1958	129	8
1924	78	7	1959	145	7
1925	88	7	1960	85	8
1926	357	8	1961	64	8
1927	64	7	1962	134	9
1928	1,947	8	1963	54	9
1929	46	7	1964	64	9
1930	49	7	1965	107	9
1931	17	7	1966	74	8
1932	306	7	1967	48	8
1933	156	8	1968	49	8
1934	109	7	1969	194	9
1935	461	7	1970	64	8
1936	121	7	1971	76	8
1937	43	7	1972	103	8
1938	630	8	1973	80	8
1939	60	6	1974	30	9
1940	251	7	1975	103	8
1941	43	7	1976	127	8
1942	68	7	1977	65	8
1943	61	7	1978	71	8
1944	448	8			
1945	85	7			
1946	70	7			
1947	117	8			
1948	52	8			
1949	102	8			
1950	210	8			
				Total 10,612	

\* Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50	4 \$5,000 to \$50,000	7 \$5 million to \$50 million
2 \$50 to \$500	5 \$50,000 to \$500,000	8 \$50 million to \$500 million
3 \$500 to \$5,000	6 \$500,000 to \$5 million	9 \$500 million to \$5 billion.

NOTE.--The above estimated losses are based on values at time of occurrence.

# NORTH ATLANTIC TROPICAL CYCLONES, 1978

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There were 11 named tropical cyclones during the 1978 hurricane season, 5 of which reached hurricane force. In addition, there was one subtropical storm in January whose claim to fame is that it was the first tropical or subtropical storm to form in this month (records are available back through 1871). Figure 1 shows this season's storm tracks, and table 1 summarizes the data for these storms.

This year's activity (11 named storms and 1 subtropical system) is just above the long-term average of 10 storms, 6 of which are hurricanes. However, the total number of storms is somewhat offset this year by the short duration of the individual cyclones. To illustrate, the total number of hurricane hours (each hour that a storm has windspeeds greater than 63 kn) computed for 1978 was 307 compared to a 30-yr average of 620 hurricane hours. With reference to effects on maritime operations, loss of life, and property damage, the number of hurricane hours is more relevant than the total number of storms. Tables 2 and 3 summarize past years' data.

Table 4 lists the ships that reported gale-force winds or higher, low pressures, or unusual sea conditions in association with a tropical weather system. There are 97 ships in the table this year. In 1976, for example, with only eight named storms, there were 151 ships included in the table for the year--33 percent less storms, but 50 percent more ships. This situation is clarified by adding that there were 596 hurricane hours in 1976. The hurricanes were of longer duration, on the average, that year.

## TROPICAL STORM AMELIA, JULY 30-31

Amelia was a short-lived tropical storm in the extreme western Gulf of Mexico that will be remembered for producing extreme rainfall over central Texas. Rainfall of 26 in. in 12 hr was reported just north of Abilene with similar readings over a large area, causing disastrous flooding in a number of river basins in central Texas. There were 33 known deaths in connection with Amelia, and property damage is estimated at \$20 million.

Amelia began as a tropical wave moving westward off the African coast on July 19. She crossed the Atlantic and Caribbean as a weak wave and developed into a tropical depression with a closed surface circulation 11 days later on July 30 in the western Gulf of Mexico near Brownsville, Tex.

Tropical storm strength was acquired later the

same day, but the storm center crossed the Texas coast between Brownsville and Corpus Christi very shortly thereafter. This abruptly ended Amelia's development. The storm's maximum sustained winds were 45 kn with a minimum pressure of 1005 mb as measured by reconnaissance aircraft.

Brownsville, the closest station to the landfall location, reported 34 kn winds. A Coast Guard cutter 60 mi southeast of Corpus Christi reported gusts to 70 kn. Rainfall amounts along the coast were in the 4 to 5-in range.

Squalls and heavy thunderstorms associated with Amelia were responsible for the loss of six craft--five commercial shrimpers and one pleasure craft. The U.S. Coast Guard rescued 34 persons at sea in connection with these incidents.

## TROPICAL STORM BESS, AUGUST 5-8

Bess, the second tropical storm in a row to develop in the western Gulf of Mexico, was of little consequence to maritime interests. This storm developed from a weak low pressure system that formed on a dissipating cold front over Georgia on August 1. The low moved southwestward, developing into a tropical depression by the 5th, and reached tropical storm strength on the 6th.

Movement toward the southwest continued and landfall occurred early on the 8th near Nautla, Mexico, about 350 mi south of Brownsville, Tex. Maximum sustained winds reached 45 kn on August 7, with a 1005 mb minimum sea-level pressure.

There were no coastal observations near the point of landfall. Winds of 25 kn were reported from Tampico and Tuxpan as the center approached the coast. There were no casualties or significant damage attributed to Bess.

## HURRICANE CORA, AUGUST 7-11

Cora was not in the primary shipping lanes and ran her course with little impact on shipping. She started as a weather disturbance that moved off the African coast on August 4. It continued westward for 2 days and then developed into a depression. Two days later, on the 8th, the depression intensified to a tropical storm about 1,000 miles west of the Azores. Hurricane force was reached later the same day. Cora was now moving on a course slightly south of due west.

Weakening began on the 9th, when the storm was still east of the Lesser Antilles. A recon-

## NORTH ATLANTIC TROPICAL CYCLONES

naissance flight on the 9th measured 55 kn winds, and the maximum winds decreased to 40 kn in squalls as Cora crossed the Windward Islands on the 10th and 11th. Finally, all evidence of circulation was lost, and the system dissipated as it continued into the southwestern Caribbean.

Cora was identified as a tropical storm and then a hurricane solely on the basis of satellite pictures. Maximum windspeed and minimum pressure obtained from satellite intensity classification techniques were 80 kn and 980 mb on August 9.

### TROPICAL STORM DEBRA, AUGUST 26-29

A tropical depression had formed at 1200 on August 26 approximately 400 mi south of New Orleans. The origin of this depression can be traced to two weather systems which interacted with each other over the south-central Gulf of Mexico. One of these was a tropical wave which had moved from the northwestern Caribbean and across the Yucatan Peninsula. The second system was an upper level low which drifted southwestward from Florida.

Strengthening occurred and tropical storm Debra was named at 1800 on the 28th, based on several ship reports of 35 to 45 kn winds as well as a reconnaissance aircraft estimate of 40 kn surface winds. Gale warnings were posted from Galveston, Tex., to Grand Isle, La.

Note that the ships in table 4 that encountered Debra all reported winds with a southerly component. All of these ships were to the east of the storm center's track. TRANSPANAMA, one of two ships to report 45 kn winds, also reported swells to 23 ft. These ship reports confirm information from oil rigs and reconnaissance aircraft which indicates that most of the high winds associated with this storm were well east of the center.

At landfall tides ranged from 1 ft above normal at Corpus Christi to 4 to 5 ft above normal along portions of the Louisiana coast. Rainfall of up to 10 in and several tornadoes were reported. One death was attributed to a tornado in Mississippi, and another death occurred on an offshore oil rig. Storm damage was considered minimal. An estimated 3,000 persons were evacuated from low-lying coastal sections of Louisiana.

### HURRICANE ELLA, AUGUST 29-SEPTEMBER 5

Ella formed within the cloudiness associated

with an old frontal zone in the southwestern North Atlantic. By 0000 on August 30, a ship and satellite data indicated that a tropical depression had formed 500 mi to the south of Bermuda. The depression moved toward the west-northwest. The HORNWIND, just north of the circulation center, reported 45 kn winds along with 16 ft seas at 2000 on the 30th, indicating that tropical storm strength had been reached several hours earlier.

Almost 24 hr later, the ROSTOCK reported 70 kn winds and 980 mb pressure, as it passed very close to Ella's center. This information agreed closely with a reconnaissance aircraft mission, and Ella was upgraded to a hurricane at 1800 on the 31st, while about 500 mi southeast of Cape Hatteras, N.C.

The hurricane decelerated and began turning northward on September 1; but recurvature was not complete, and Ella drifted slowly northward for 24 hr. Some weakening occurred at this time. After reaching 959 mb at 2100 on the 1st, the central pressure increased more than 20 mb.

Finally, on the 3d Ella responded to a trough moving eastward from the Great Lakes and recurved, accelerating toward the northeast with a forward speed of up to 40 kn. It was during this period of September 3 to 5 that most of the ships in table 4 encountered the storm. Ella deepened again, this time to 956 mb with 120 kn winds--Ella's maximum intensity. She passed close to the southeastern tip of Newfoundland and then became extratropical.

A hurricane watch was issued for the Outer Banks of North Carolina on September 1, the beginning of Labor Day weekend. As it turned out, the only storm effect was beach erosion to the Outer Banks, but the media reported that the tourist industry in this area was adversely affected from publicity concerning the hurricane threat.

### HURRICANE FLOSSIE, SEPTEMBER 3-16

Flossie's activities were confined to the open North Atlantic, and this storm was never a threat to land. A wave, midway across the Atlantic, strengthened into a depression early on September 4. The FOSSARUS reported 40 kn winds at 1200, which resulted in the upgrading of Flossie to tropical-storm status. Flossie traveled west to northwestward for several days, then began recurving, and weakened again to a tropical depression. By the 9th the system was moving northeastward and strengthened again



# NORTH ATLANTIC TROPICAL CYCLONES

reaching storm strength on the 10th.

Far out in the Atlantic, Flossie stalled on the 12th. An eye structure became visible on satellite pictures, and hurricane status was assigned. The SNOW BALL reported 75 kn winds at 1200 on the 13th.

Flossie reached maximum intensity of 85 kn with a pressure of 976 mb early on the 13th. She continued toward the northeast and then became extratropical on the 15th about 700 mi north of the Azores.

## HURRICANE GRETA, SEPTEMBER 13-20

Greta originated from a tropical wave which crossed the Atlantic immediately after the system which produced Flossie. However, the system that was to become Greta continued westward and moved into the Caribbean on September 13. Winds gusting to 45 kn were reported from Barbados as the wave passed.

A depression formed immediately thereafter, centered 75 mi west northwest of Port of Spain, Trinidad, not a favorable location for tropical development. The depression was named at 1200 on the 14th, just north of Netherlands Antilles, and Greta reached hurricane intensity 2 days later south of Jamaica. Winds reached a maximum of 115 kn and the central pressure fell to 947 mb as the hurricane eye approached the northeastern tip of Honduras. The eyewall struck a relatively undeveloped coastal section, but nearby Puerto Lempira reported winds of 70 kn gusting to 100 kn.

Remaining partially offshore, the storm weakened and continued westward, crossing the Islas de la Bahia and landfalling on the coast of Belize near Stann Creek at 0000 on the 19th.

According to records as far back as 1886, the 4 yr between Greta and the previous hurricane in the Caribbean is the longest hurricane-free period of record. In 1974 Fifi passed through the same area on a remarkably similar track. Also, each storm eventually crossed Central America and southern Mexico to reform in the Pacific. Further, in both cases the reformed system became the 15th named storm of the eastern North Pacific season. Fifi became Orlene and Greta became Olivia.

Greta was a more intense storm than Fifi; yet, Fifi caused torrential rains in Honduras and thousands died. Only a few deaths were reported in connection with Greta, one in Honduras and

four in Belize.

## TROPICAL STORM HOPE, SEPTEMBER 11-21

Hope developed in the subtropics from a low pressure system off the northeast coast of Florida on September 11. She tracked in an eastward direction for several days as a subtropical depression.

Satellite pictures revealed that the associated cloudiness had taken on a tropical appearance by the 17th, and Hope was named at 0600. The NAI LUISA confirmed this analysis 12 hr later with westerly winds of 40 kn very close to the storm's center.

Hope was now heading toward the northeast, and the BANGLAR MANN reported identical westerly winds at 1800 on the 19th as well as a 986 mb pressure reading while very close to the center.

Hope reached maximum strength of 55 kn winds several hundred miles northwest of the Azores on the 19th. Hope did not affect land, and there were no marine-related incidents.

## TROPICAL STORM IRMA, OCTOBER 2-5

Irma, one of many short-lived storms this season, spent its entire history in the eastern North Atlantic. Like the previous storm, this one also had a subtropical origin and became a storm near latitude 35°N, just south of the Azores on October 4. Tropical storm advisories were issued for the islands, but Irma passed midway between the westernmost islands and the central Azores with little impact.

The only gale-force winds reported were from the METEOR AND POINTE MADAME, well to the east of the storm's center. The storm lost its identity on the 5th as it was overtaken by a strong frontal system.

## TROPICAL STORM JULIET, OCTOBER 7-11

Juliet was a poorly organized tropical storm for a 3-day period over the southwestern North Atlantic. On October 9 the storm was of maximum intensity--44 kn winds and a 1006 mb central pressure--while northeast of Puerto Rico. The HOLLANDIA reported a windspeed of 45 kn on the 10th while less than 100 mi east of the storm's center.

Juliet was classified as a tropical

# NORTH ATLANTIC TROPICAL CYCLONES

depression on October 7 at a position 600 mi east of San Juan and was upgraded to a tropical storm on the 9th. The storm recurved and was last located 300 mi southwest of Bermuda before it was absorbed by a nontropical low pressure system. Remnants of Juliet moved across Bermuda late on the 11th and produced 3 in of rain in a 12 hr period.

## HURRICANE KENDRA, OCTOBER 28-NOVEMBER 3

The last named storm of the season originated from an interaction between a tropical disturbed weather system moving northward from the Caribbean and an old frontal zone. Rainfall amounts of up to 18 in were measured in Puerto Rico during this period of development, causing one death and about \$6 million in damages.

Kendra was named at 0000 on October 29 while east of the Bahamas. The SEA RACER reported gusts to 70 kn and a 999 mb pressure at this time. Kendra became a minimal hurricane on the 29th and 30th with 70 kn sustained winds and a 990 mb central pressure.

Gale warnings were issued along the North Carolina coast on the 30th, but Kendra moved away to the northeast. Minor damage from beach erosion was reported along the southeast coast of the United States.

## SUBTROPICAL STORM, JANUARY 18-22

Historical records indicate that this is the first known storm with tropical characteristics to form in January. (A hurricane in the Leeward Islands during January 1955 actually became a storm on December 30.)

This system originated 1,500 miles east-northeast of Puerto Rico on January 18. It traveled generally in a westward direction for several days and dissipated late on the 22d about 200 miles north of Puerto Rico. The storm track is given in figure 1 as system number 1.

Table 4 lists a number of ships with gale-force winds. Note that most of these reports are accompanied by rather high pressure readings, indicating that the maximum winds in a subtropical cyclone are some distance from the storm center.

Table 1. --Summary of North Atlantic tropical- and subtropical-cyclone statistics, 1978

No.	Name	Class	Dates	Maximum sustained winds(kn)	Lowest pressure (mb)	U.S. damage (\$ million)	Deaths
--	--	ST	Jan. 18-22	40	1002		
1	Amelia	T	July 30-31	45	1005	20	33
2	Bess	T	Aug. 5-8	45	1005		
3	Cora	H	Aug. 7-11	80	980		
4	Debra	T	Aug. 26-29	50	1000		2
5	Ella	H	Aug. 29 - Sept. 5	120	956		
6	Flossie	H	Sept. 3-16	85	976		
7	Greta	H	Sept. 13-20	115	947		5(Honduras, Belize)
8	Hope	T	Sept. 11-21	55	987		
9	Irma	T	Oct. 2-5	45	1001		
10	Juliet	T	Oct. 7-11	45	1006		
11	Kendra	H	Oct. 28 - Nov. 3	70	990	minor (Puerto Rico)	1

ST - subtropical storm (winds 34 kn or higher)  
T - tropical storm (winds 34 - 63 kn)  
H - hurricane (winds 64 kn or higher)

**Table 2**  
**NORTH ATLANTIC TROPICAL CYCLONES FOR PAST YEARS**

TOTAL NUMBER OF TROPICAL CYCLONES, LOSS OF LIFE AND DAMAGE								
Total Number Tropical Cyclones*			Total Number Hurricanes		Loss of Life		Damage by Categories**	
Year	All Areas	Reaching U. S. Coast	All Areas	Reaching U. S. Coast	Total All Areas	United States	Total All Areas	United States
1931	9	2	2	0		0		#
1932	11	5	6	2		0		#
1933	21	7	9	5		63		7
1934	11	5	6	3		17		6
1935	6	2	5	2		414		7
	58	21	28	12				
1936	16	7	7	3		9		6
1937	9	4	3	0		0		4
1938	8	4	3	2		600		8
1939	5	3	3	1		3		3
1940	8	3	4	2		51		6
	46	21	20	8				
1941	6	4	4	2		10		7
1942	10	3	4	2	17	8	7	7
1943	10	4	5	1	19	16	7	7
1944	11	4	7	3	1,076	64	8	8
1945	11	5	5	3	29	7	8	8
	48	20	25	11				
1946	6	4	3	1	5	0	7	7
1947	9	7	5	3	72	53	8	8
1948	9	4	6	3	24	3	7	7
1949	13	3	7	2	4	4	8	8
1950	13	4	11	3	27	19	7	7
	50	22	32	12				
1951	10	1	8	0	244	0	7	6
1952	7	2	6	1	16	3	6	6
1953	14	6	6	2	3	2	7	7
1954	11	4	8	3	720	193	9	9
1955	12	5	9	3	1,518	218	9	9
	54	18	37	9				
1956	8	2	4	1	76	21	8	7
1957	8	5	3	1	475	395	8	8
1958	10	1	7	0	49	2	7	7
1959	11	7	7	3	57	24	7	7
1960	7	5	4	2	185	65	8	8
	44	20	25	7				
1961	11	3	8	1	345	46	8	8
1962	5	1	3	0	4	4	6	6
1963	9	1	7	1	7,218	11	9	7
1964	12	6	6	4	266	49	9	9
1965	6	2	4	1	76	75	9	9
	43	13	28	7				
1966	11	2	7	2	1,040	54	8	7
1967	8	2	6	1	68	18	8	8
1968	8	3	5	1	11	9	7	7
1969	18	3	12	2	364	256	9	9
1970	10	3	5	1	74	11	9	8
	55	13	35	7				
1971	13	5	6	3	44	8	8	8
1972	7	3	3	1	128	121	9	9
1973	8	1	4	0	16	5	7	7
1974	11	2	4	1	3,000+	1	8	8
1975	9	1	6	1	80	21	9	9
	48	12	23	6				
1976	8	4	6	1	77	9	8	8
1977	6	1	5	1	10	0	7	7
1978	12	2	5	0	41	35	7	7
Total	477	167	269	81				
Mean	9.9	3.5	5.6	1.7				

\*\*The Environmental Data Service has for some time recognized that, without detailed expert appraisal of damage, all figures published are merely approximations. Since errors in dollar estimates vary in proportion of the total damage, storms are placed in categories varying from 1 to 9 as follows:

- |                    |                            |                                    |
|--------------------|----------------------------|------------------------------------|
| 1 Less than \$50   | 4 \$5,000 to \$50,000      | 7 \$5,000,000 to \$50,000,000      |
| 2 \$50 to \$500    | 5 \$50,000 to \$500,000    | 8 \$50,000,000 to \$500,000,000    |
| 3 \$500 to \$5,000 | 6 \$500,000 to \$5,000,000 | 9 \$500,000,000 to \$5,000,000,000 |

\*Including hurricanes

# Not reported in literature, believed minor.

+ Additional deaths for which figures are not available.



**Table 3**  
**NORTH ATLANTIC TROPICAL CYCLONES FOR PAST YEARS**

Frequency of Tropical Cyclones (Including Hurricanes) by Months and Years										Frequency of Tropical Cyclones Reaching Hurricane Intensity by Months and Years										
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total		May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1931		1	1	2	3	1	1		9	1931				3	2	1			2	
1932	1			3	3	3	1		11	1932					1		1		6	
1933	1	1	3	7	5	3	1		21	1933		1	1	1	3	1			9	
1934	1	1	1	2	2	3	1		11	1934		1	1	1	1	1	1		6	
1935				3	1	2			6	1935				2	1	2			5	
1936		3	2	6	4	1			16	1936		1	1	1	3	2			7	
1937			1	2	6				9	1937					3				3	
1938				3	1	3	1		8	1938				2	1				3	
1939		1		1	1	2			5	1939				1		2			3	
1940	1			3	2	2			8	1940				3	1				4	
1941					4	2			6	1941					3	1			4	
1942				3	3	3	1		10	1942				3					4	
1943			1	2	4	3			10	1943			1		2	1		1	5	
1944			3	2	4	2			11	1944			2	1	3	1			7	
1945		1	1	4	3	2			11	1945		1			1	2			5	
1946		1	1	1	1	2			6	1946			1		1				3	
1947			1	2	3	3			9	1947				2	1	2			5	
1948	1		1	2	3	1	1		9	1948				1	3	1			6	
1949				3	7	2	1		13	1949					2	4	1	1	7	
1950				4	3	6			13	1950				4	3	4			11	
1951	1			3	4	2			10	1951		1			3	2			8	
1952	(Feb.) 1			2	2	2			7	1952				2	2	2			6	
1953		1		3	4	4	1	1	14	1953				2	3	1			6	
1954			1	2	4	1	1	1	11	1954		1			2	3	1	1	8	
1955			1	4	5	2			12	1955				3	5	1			9	
1956		1	1	1	4	1			8	1956									4	
1957		2	1	1	4	1			8	1957		1	1	1	1	1			3	
1958		1		4	4	1			10	1958				3	3	1			7	
1959	1	2	2	1	3	2			11	1959		1	2		3	1			7	
1960		1	2	1	3				7	1960			1	1	2				4	
1961			1		6	2	2		11	1961			1		5	1	1		8	
1962				2	2	1			5	1962				1	1	1			3	
1963			1	1	5	2			9	1963			1	1	4	1			7	
1964			1	4	4	1	1		12	1964				2	3	1			6	
1965		1	1	2	2	1			6	1965				2	1	1			4	
1966		1	4	1	4				11	1966		1		3	1		1		7	
1967				1	4	3			8	1967				1	3	2			6	
1968		3		1	3	1			8	1968				1	1	1			5	
1969			1	5	6	5	1		18	1969		2		4	4	3	1		12	
1970	1		1	3	3	2			10	1970				1	1	2			5	
1971			1	4	6	1	1		13	1971				2	4				6	
1972	1	1	2	2	2	2	1		7	1972		1			1				3	
1973			2	2	2	2			8	1973			1	1	1	1			4	
1974		1	1	4	4	1			11	1974				2	2				4	
1975		1	1	2	3	1		1	9	1975			1	2	3				6	
1976			1	5	2	1			10	1976				4	1		1		6	
1977			1	1	3	2			6	1977				1	3	1			5	
1978	(Jan) 1		1	4	3	3			12	1978				2	2	1			5	
Totals	(Jan) 1 (Feb) 1	11	26	39	124	164	91	17	477	Totals	2	11	18	78	104	48		7	1	269

Table 4.--Ships encountering tropical cyclones in the North Atlantic during 1978

+ Direction for sea waves same as wind direction.





# EASTERN NORTH PACIFIC TROPICAL CYCLONES, 1978

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Tropical cyclone activity over the eastern North Pacific began on May 30 and ended October 20. Spanning 144 days, the 1978 season was 8 days shorter than the 1977 season. Table 1 shows the monthly distribution of the cyclone activity, and tables 2 and 3 compare this activity with that of recent years. The 1966-78 period was chosen for comparison since it probably includes all tropical-cyclone activity in the area owing to the excellent satellite coverage during that period. Prior to 1966 some activity was undetected because of the sparsity of data. A summary of the important features of the 1978 season is given in table 4. Cyclone tracks are shown in figures 1, 2, and 3.

Although the 1978 tropical cyclone season was 8 days shorter than the 1977 season, there was a 24-percent increase in the number of cyclones. The number reaching tropical storm or hurricane intensity nearly doubled from 47 percent in 1977 to 86 percent in 1978. The number of hours during which hurricanes were in progress increased from 128 in 1977 to 840 in 1978. Tropical storm hours also increased from 343 in 1977 to 873 in 1978. The highest sustained windspeed in 1977 was 90 kn compared to 120 kn in 1978. Of the 12 hurricanes during 1978, 6 had sustained winds of 100 kn or greater.

The 1978 tropical cyclone season was exceptional in that hurricane Norman became the third such storm in as many years to bring extensive rains to southern and central California. In 1977 hurricane Doreen brought heavy rains to California, and in 1976 hurricane Kathleen became the first tropical cyclone to hit southern California since 1939.

Tropical-cyclone advisories were issued by the Eastern Pacific Hurricane Center (EPHC) four times daily at 0000, 0600, 1200, and 1800. During the 1978 season 394 advisories were issued for 21 tropical cyclones, compared to 193 advisories for 17 tropical cyclones in 1977. This is a 104-percent increase in the number of advisories with on a 24-percent increase in the number of cyclones.

Many ships passed close to tropical-cyclone activity during the season and, undoubtedly, experienced heavy weather and seas, but none reported casualties or damage.

Only three tropical cyclones moved onshore during the season, one with 45-kn winds and the other two with 30-kn winds. No damage reports were received, probably because the cyclones were of low intensity and dissipated rapidly as they moved inland. Although hurricane Norman dissi-

pated off the southern California coast, rain from the cyclone spread northward and caused considerable damage to agriculture in California during the first week in September. California lost 95 percent of its raisin crop--the worst loss on record. Figs and almonds were hard hit also. The rainfall was not especially heavy, but it was extensive; lingering cloud cover prevented crops from drying out, increasing the losses. Agricultural losses are estimated in excess of \$300 million.

The National Environmental Satellite Service Field Station, collocated with the Eastern Pacific Hurricane Center, provided excellent satellite coverage during the 1978 tropical cyclone season. Several movie loops were available each day, as well as visual and infrared data at 30-min intervals from the stationary SMS-2 (Synchronous Meteorological Satellite) and NOAA polar-orbiting satellites. The detail on the satellite imagery was excellent with full-disk resolution at 4 mi, sector resolution at 2 mi, and 1/2-mi resolution available on request. Especially useful were H-curve "enhanced" pictures from infrared imagery depicting the upper level cold centers of the tropical cyclones. The gridding of satellite pictures was accurate to within a few miles owing to the stability of SMS-2 over the Equator and easily visible landmarks. Cyclonic intensity was calculated using the Dvorak technique of satellite cyclone analysis.

The U.S. Air Force made four reconnaissance flights into eastern North Pacific tropical cyclones during the season. The first flight, with two penetrations, was made into hurricane Norman on September 2, when the cyclone was about 240 mi southwest of the tip of Baja California. The next day another flight was made into Norman when he was 370 mi west of the tip of Baja California. Two days later a third flight was made into Norman on September 5. The cyclone had moved into a position 155 mi southwest of San Diego and was weakening rapidly from tropical storm to depression stage. The final reconnaissance flight of the season was made into hurricane Rosa on October 5. This flight, with three penetrations into the cyclone, was made as Rosa weakened from hurricane to tropical storm stage while 110 miles south of the tip of Baja California.

While satellite imagery continues to improve and is probably one of the most important tools used by the tropical forecaster today, aircraft reconnaissance and synoptic ship reports are as important as ever as invaluable ground-truth observations for both the tropical forecaster and satellite meteorologist.

# EASTERN NORTH PACIFIC TROPICAL CYCLONES

Several computer-derived forecasts of tropical cyclone tracks for the eastern North Pacific were available from the National Hurricane Center in Miami during the 1978 season. The forecast tracks included simulated analog (CLIPPER), statistical synoptic (EPHC77), analog (EPANALOG), and barotropic (SANBAR) models. The movable fine-mesh model (MFM) was available on request from the National Meteorological Center in Maryland.

The average forecast error for EPHC for 1978 for the 24-, 48-, and 72-hr forecast periods was 152 mi, an improvement of 42 percent over the 1977 average. The combined error for computer-derived forecasts was 176 mi, an improvement of 48 percent over 1977 computer-derived forecast errors. The slight improvement of the computer-derived forecasts over EPHC forecasts is partially due to the fact that computer errors in 1977 were so much larger than EPHC errors, leaving greater room for improvement. Computer-derived forecasts during 1978 were superior to those of 1977 also because of improved "best-tracking" methods for the past 12- and 24-hr positions. Considering only the 24-hr forecasts, the EPHC forecasts improved 52 percent over their 1977 errors, while the computer-derived forecasts improved 49 percent. At the 48-hr period both EPHC and computer forecasts showed equal improvement of 53 percent. At the 72-hr period the EPHC forecasts improved only 31 percent compared to 45 percent for the computer forecasts, a direct result of the large spread (102 mi) between 1977 errors.

Only named tropical cyclones (winds  $\geq$  34 kn) are described. There were three numbered cyclones that did not develop beyond the depression stage.

Four tropical storms and one hurricane moved into the central North Pacific forecast region from the eastern North Pacific forecast region. The description of these cyclones is continued in the accompanying article, "Central North Pacific Tropical Cyclones, 1978."

## HURRICANE ALETTA - MAY 30-31

The 1978 tropical cyclone season began May 27 with a small disturbance over the eastern Gulf of Tehuantepec. It expanded rapidly, moved southward at 20 kn, and reached 10°N, 100°W, by late evening of the 28th. It then turned northward and, with additional thunderstorm activity flowing into the area from the Inter-tropical Convergence Zone (ITCZ) to the south, began to intensify slowly. By 1200 on the 30th satellite imagery showed the center of the disturbance with a diameter of 300 mi, and it was upgraded to tropical storm Aletta near 15°N, 100°W, about 110 mi south of Acapulco, Mexico. The storm was moving northwestward at 8 kn and intensifying. By 1800 the center was near

15.6°N, 100.5°W, about 90 mi south-southwest of Acapulco. The FRESNO CITY reported 51-kn easterly winds 60 mi to the north, and another ship about 50 mi north-northeast of the storm had 65-kn southeasterly winds. By 2200 a small eye was visible on satellite pictures. Aletta continued to move northwestward and was upgraded to a hurricane with 65-kn winds near 16.2°N, 101°W, at 0000 on the 31st. Aletta was now 90 mi west-southwest of Acapulco and moving northwest at 8 kn over 81°F water. By 0600 winds near her center (16.8°N, 101.6°W) had decreased to 50 kn, and the hurricane was downgraded to a tropical storm. Moving between high pressure aloft over southern Mexico and a trough of lower pressure aloft over northwestern Mexico, Aletta turned to the north-northwest toward the Mexican coast. By 1200 Aletta was 30 mi west of Zihuatanejo. Winds near the center had decreased to 45 kn. Slowing to 5 kn, Aletta moved onshore 45 mi west-northwest of Zihuatanejo at 1730. Although the storm dissipated rapidly after moving inland, convective activity lingering near the coast continued 30- to 40-kn winds over the offshore waters through 1800 on June 1.

## TROPICAL STORM BUD - JUNE 17-20

The second tropical cyclone of the 1978 season began as a tropical disturbance 700 mi west-southwest of Acapulco on June 15. It moved west-southwestward at 12 kn over 84°F water for 24 hr, then turned west-northwestward and began to intensify. By 0000 on the 17th, cyclonic circulation was evident; and the disturbance was upgraded to a tropical depression near 11.2°N, 118°W. The RIVERBANK helped locate the center of the cyclone during this period. By 1200 the winds had increased to 35 kn, and the depression was upgraded to tropical storm Bud near 12.2°N, 120.2°W. By 1800 Bud had moved to 12.6°N, 121.3°W. The third cyclone of the season, later to become hurricane Carlotta, was beginning to develop 740 mi to the east. Ship reports relayed through the U.S. Coast Guard at Point Reyes indicated 40- to 50-kn winds 100 mi north of the storm's center and gusts as high as 60 kn within 30 mi of the center. Observations from the cargo ship ANDOMALES and the research ship DEEPSEA MINER II were of great value in locating Bud's center at this time. The DEEPSEA MINER II reported gusts to 50 kn about 40 mi from the center. With sustained winds of 50 kn and gusts to 65 kn, Bud continued to move west-northwestward to 15°N, 126°W, by 1800 on the 18th. Bud moved over 80°F water and began to weaken; by 0600 on the 19th the center was near 15.9°N, 127.9°W, and the winds had decreased to 40 kn. Bud turned westward and, slowing to 8 kn, began to weaken rapidly. By 0000 on the 20th winds had decreased to 30 kn, and Bud was downgraded to a tropical depression near 16°N, 130.6°W. Drifting under a weak upper level high-pressure area, the cyclone continued to weaken. The final advisory was issued at 0600 on June 20 with the center



## EASTERN NORTH PACIFIC TROPICAL CYCLONES

near 16.2°N, 131.5°W.

### HURRICANE CARLOTTA - JUNE 17-25

While Bud was still a disturbance on June 15, another disturbance began to develop 700 mi east of Bud and 300 mi south of Acapulco. Moving west-northwestward, the new disturbance began to intensify. By 0600 on the 17th cyclonic circulation was visible, and the disturbance was upgraded to a tropical depression near 13.7°N, 106.1°W, about 400 mi west-southwest of Acapulco. Convective activity extended over a diameter of 450 mi, small when compared to the 750-mi diameter associated with Bud, 770 mi to the west. Turning westward, the depression continued to intensify over 84°F water. The MAMMOTH FIR helped locate the center. By 0000 on the 18th, winds near the storm's center had increased to 35 kn, and the cyclone was upgraded to tropical storm Carlotta near 13.5°N, 109.7°W, about 200 mi north of Clipperton Island. The tropical storm then turned toward the west-southwest. Moving along almost the same track that Bud had taken, the storm moved around the southern side of an upper level high-pressure area centered over central Baja California. A small eye was visible on satellite pictures by 0000 on the 19th. Winds increased to 65 kn by 0600, and Carlotta was upgraded to a hurricane near 11.9°N, 113.3°W, about 260 mi west-northwest of Clipperton Island. Six hours later the cyclone reached its southernmost position at 11.8°N, 113.9°W, and continued to intensify over 83°F water. Carlotta reached maximum intensity of 115 kn at 1200 on June 21 near 13.9°N, 118.1°W. Moving west-northwestward, Carlotta reached 14.3°N, 119.5°W, at 0000 on the 22d, then turned northwestward, and began to weaken over colder 78° to 81°F water during the next 12 hr. By 1200 on the 23d Carlotta was moving into a field of low clouds. Winds decreased to 60 kn by 0000 on the 24th, and Carlotta was downgraded to a tropical storm near 18.3°N, 125.3°W. Moving at 12 to 16 kn over 77°F water, she turned westward and weakened rapidly. By 0600 on the 25th winds had diminished to 25 kn, and the storm was downgraded to a tropical depression near 19.2°N, 132.2°W. The final advisory was issued at 1800 on June 25 with the center near 19.1°N, 135.6°W.

### HURRICANE DANIEL - JUNE 26-JULY 3

Daniel began as a tropical disturbance 210 mi southwest of the Nicaraguan coast on June 24. He moved west-northwestward at 15 kn and intensified over 82°F water. Cyclonic circulation was visible about the center by 1800 on the 26th, and the disturbance was upgraded to a tropical depression near 13.6°N, 100.1°W, about 200 mi south of Acapulco. The cyclone then turned northwestward and with winds now 35 kn was upgraded to a tropical storm at 0600 on the 27th near 14.7°N, 101.7°W. Winds continued at 35 kn

for the next 12 hr, then begun to decrease as Daniel turned westward over 80°F water. The storm was downgraded to a tropical depression again at 1800 on the 27th near 15.6°N, 103.6°W. The DAMPIER MARU, sailing 40 mi west of the depression, was helpful in locating its center. Winds increased after 1200 on the 28th. By 1500 they had reached 55 kn, and Daniel was again a tropical storm near 16.5°N, 107.2°W. He continued westward, passing 110 mi south of Socorro Island and 380 mi south of the tip of Baja California at 1600 on the 29th. By 1800 winds had reached 65 kn, and Daniel was upgraded to a hurricane near 16.9°N, 111.9°W. Observations were received from the NORSE VIKING 140 mi to the southwest. Daniel accelerated toward the west and continued to intensify. At 1200 on the 30th his winds peaked at 100 kn near 16.8°N, 115.2°W, and remained at this intensity for 24 hr. The hurricane moved rapidly westward at 16 kn along the southern edge of the eastern Pacific High. By 1800 on July 2, Daniel's winds had decreased to 45 kn, and he was downgraded to a tropical storm near 16.8°N, 129.7°W. Daniel continued to move westward at about 20 kn. His winds diminished and he was downgraded to a tropical depression near 17.3°N, 135.8°W, at 1200 on the 3d. The cyclone then turned west-southwestward and began to dissipate rapidly over 75°F water. The final advisory was issued at 1800 on the 3d with the center near 16.4°N, 137.8°W.

### TROPICAL STORM EMILIA - JULY 6-10

A tropical disturbance formed east of Acapulco on July 3 and moved southwestward off the coast of Mexico to near 15°N, 101.3°W, by 1800 on the 4th. It then turned westward, accelerated to 16 kn, and intensified over 85°F water. Satellite pictures showed cyclonic circulation about the center, and the disturbance was upgraded to a tropical depression at 1800 on the 6th near 15°N, 112.5°W, about 750 mi west of Acapulco. Winds reached 35 kn on the 7th and the depression was upgraded to tropical storm Emilia at 15°N, 113.5°W. By 1200 the storm had moved to 14.5°N, 115.4°W. It then turned northwestward and continued to intensify. Winds near the center reached 50 kn on the 8th and maximum intensity of 55 kn by 0600 on the 9th. Hurricane Fico was developing 900 mi to the east-southeast near 10°N, 105.8°W. The MARCONA EXPORTER provided valuable observations as Emilia continued her northwestward movement. Emilia's winds decreased over cooler 79°F water, and by 0600 on the 10th she was only a depression near 20.7°N, 124.5°W. The final advisory was issued at 1800 on July 10 with the center near 21.7°N, 126.7°W.

### HURRICANE FICO - JULY 9-28

Hurricane Fico began as a tropical disturbance 450 mi south-southeast of Acapulco on



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July 6. The disturbance moved westward at 10 kn and intensified over 81°F water. A cyclonic circulation was evident on satellite pictures by 0000 on the 9th, and the disturbance was upgraded to a tropical depression near 10.8°N, 105.9°W. The depression then turned toward tropical storm Emilia, 870 mi to the west-northwest. The MARCONA EXPORTER and UNION SUNRISE helped to locate the center. Fico attained tropical-storm intensity on the 10th near 12.1°N, 109.5°W, about 400 mi south of Socorro Island and 100 mi north of Clipperton Island. He then turned northwestward and intensified rapidly over 84°F water. By 1800 he was a hurricane with 65-kn winds near 13.6°N, 111.4°W. Fico now had a well-developed eye. He turned west-northwestward and continued to intensify. By 1200 on the 12th winds near his center had reached maximum intensity of 120 kn near 15°N, 115°W, 325 mi southwest of Socorro Island. The CHEVRON GENOA and PRIPIATLES were helpful in locating Fico. With high-level outflow extending 250 mi from the center, Fico turned westward to 15.1°N, 118.4°W, by 1800 on the 13th. The hurricane has passed over a pocket of cool 79°F water, and winds decreased rapidly to 80 kn by 0600 on the 14th. Continuing westward, Fico once again moved over warm 83°F water. By 1200 his winds had increased to 105 kn, and by 0000 on the 15th he had 115-kn winds near 15.3°N, 124°W. A visible satellite picture with 1/2-mi resolution, shows Fico at 0115 on the 17th with 115-kn winds near 16.5°N, 136.1°W. The EPHC issued its final advisory on Fico at 1200 on the 17th with the center near 16.1°N, 138.9°W.

Fico moved into the central North Pacific, continuing westward at 12 to 15 kn near latitude 16°N. He passed 150 mi south of the island of Hawaii on the 20th and then turned to the northwest toward an upper level trough of low pressure. Moving over colder water, the cyclone began to weaken rapidly. The final advisory was issued at 1200 on July 28 with the center at 30°N, 179°W. During Fico's lifespan of 468 hr, 79 advisories were issued on the cyclone.

### HURRICANE GILMA - JULY 13-20

As Fico moved southwest of Socorro Island on July 11, Gilma was developing 1,100 mi to the east and 350 mi southeast of Acapulco. Moving west-southwestward over 84°F water, the area of convective activity associated with the new disturbance expanded rapidly from a diameter of 300 mi to one of 600 mi in less than 24 hr. By 0000 on the 13th, cyclonic circulation was evident, and the disturbance was upgraded to a tropical depression near 11.4°N, 99.5°W. By 0600 Gilma reached tropical-storm intensity near 11°N, 100.3°W. She moved west-southwestward for 12 hr, then turned westward near 10.5°N, 101.8°W. By 1200 on the 14th Gilma was 490 mi southwest of Acapulco. She turned northwestward, and by 1800 on the 15th Gilma had 65-kn hurricane-force winds near 14.8°N, 109.8°W. She attained maximum

intensity of 100 kn by 0600 the next day near 14.9°N, 112.2°W. Convective activity associated with the storm had expanded to a diameter of about 800 mi. Gilma continued to move westward for another 6 hr, then turned west-northwestward to near 15°N, 113.2°W. Infrared satellite imagery showed the cyclone with an eye of 15 mi in diameter. By 0000 on the 17th Gilma had moved to 16.3°N, 114.5°W. The KYOTO and MING LEADER provided much desired observations. Continuing west-northwestward, Gilma moved to 18°N, 118.6°W, by 0600 on the 18th. Ninety-knot winds near the center slowly decreased as she moved over colder 79°F water. Low clouds to the northwest also began to move into the low-level circulation, further weakening the hurricane. By 0000 on the 19th the winds had diminished to 55 kn, and Gilma was downgraded to a tropical storm. The MING LEADER, 50 mi north-northwest of Gilma at 1200, reported north-northeasterly winds of 35 kn. By now the winds near the center were 45 kn. Moving over colder 75°F water, the storm weakened rapidly. By 1800 winds had decreased to 25 kn, and the storm was downgraded to a tropical depression near 21°N, 126.8°W. With low clouds moving into all but the eastern quadrant, the cyclone dissipated rapidly. The final advisory was issued July 20 with the center near 21.6°N, 128.2°W. About 1,500 mi to the west Fico was just beginning to move south of the Hawaiian Islands.

### HURRICANE HECTOR - JULY 22-29

Hector began as a disturbance about 170 mi south of Guatemala on July 19. He moved rapidly west-northwestward at 15 kn for 24 hr, then slowed to 6 kn for the next 24 hr. By 0000 on the 22d a cyclonic circulation had developed, and the disturbance was upgraded to a tropical depression 200 mi south of Acapulco. Moving over warmer water, the depression intensified to tropical-storm strength by 0600 near 13.7°N, 100.7°W. The U.S. Coast Guard cutter NORTHWIND, 150 mi to the northwest, helped locate the storm. By 0000 on the 23d Hector was 200 mi southwest of Acapulco with 60-kn winds; by 1200 the winds had increased to 65 kn, and Hector was upgraded to a hurricane near 15.3°N, 104.1°W. He was now moving westward. At 1800 on the 24th satellite pictures showed a well-defined eye near the center of the hurricane. Winds near the center were now 100 kn, and by 0600 on the 25th they reached maximum intensity of 120 kn about 150 mi south of Socorro Island. Hector continued to move westward for another 6 hr, then turned northwestward, reaching 19.8°N, 116.9°W, by 1800 on the 26th. Reports from several ships, the MEONIA, PHILIPPINE PRESIDENT GARCIA, NEPTUNE DIAMOND, EXXON BOSTON, and REDSKY, were helpful in locating Hector during the 23d to the 26th. Turning west-northwestward again, Hector began to weaken over 81°F water. Low clouds to the northwest entered the low-level circulation, further weakening the cyclone. By 1800 on the 27th winds

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had decreased to 60 kn, and the hurricane was downgraded to a tropical storm near 20.9°N, 120.3°W. Hector moved west-northwestward at 11 kn over colder 78°F water. Low clouds spread rapidly around the western and southern quadrants, reducing the winds to 30 kn, and the storm was downgraded to a tropical depression near 22.4°N, 126.1°W, at 0000 on the 29th. As the depression continued west-northwestward, sea-surface temperatures dropped to 74°F. The final advisory was issued July 29 with the center near 23.5°N, 130°W. Remnants of the cyclone drifted westward and were visible on satellite pictures through August 3.

### HURRICANE IVA - AUGUST 11-15

Iva began as a tropical disturbance 250 mi southwest of Acapulco on August 9. Moving north-northwestward at 7 kn the disturbance passed 100 mi southwest of Manzanillo, Mexico, during early morning of the 10th. It then turned westward and began to intensify over 82°F water. By 0600 on the 11th infrared satellite pictures showed cyclonic circulation, and the disturbance was upgraded to a tropical depression near 18°N, 108°W. It intensified rapidly. Within 6 hr winds had increased to 45 kn, and the depression was upgraded to a tropical storm at 18°N, 109°W. Iva turned west-northwestward and passed along the southern shore of Socorro Island between 0100 and 0200 on the 12th. She continued to intensify over warm 86°F water. By 0600 on the 13th Iva reached maximum intensity of 65 kn and was upgraded to a hurricane near 20.1°N, 115.7°W. Iva continued to move west-northwestward, but she began to weaken over cooler 80°F water. The AMSTELVELD helped locate Iva's center during this period. At 0000 on the 14th Iva was downgraded to a tropical storm with 60-kn winds near 21.1°N, 117.7°W. By the 15th winds had diminished to 30 kn, and the storm was downgraded to a tropical depression near 22°N, 119.6°W. The cyclone then turned northwestward and dissipated rapidly over 79°F water. The final advisory was issued at 0600 with the center near 22.5°N, 120°W, 550 mi west of the tip of Baja California.

### HURRICANE JOHN - AUGUST 18-31

As Iva dissipated on the 15th, three new disturbances popped up along latitude 10°N near 104°W, 114°W, and 124°W. The one in the center moved westward for 24 hr then turned west-northwestward and began to intensify. By 0000 on the 18th satellite movie loops displayed a cyclonic circulation, and this disturbance was upgraded to a tropical depression near 12.2°N, 121°W. The depression turned westward again, and with winds now blowing at 35 kn it was upgraded to tropical storm John near 12.3°N, 123.8°W. During this time hurricane Kristy was developing from the disturbance near 104°W, and tropical storm Lane was forming from the one near 124°W. By 1800 on

the 19th John had moved to 12°N, 125°W. John turned west-northwestward and continued to intensify. By 0600 on the 22d he was near 15.8°N, 133.6°W. He then turned westward, and at 1200 was upgraded to a hurricane with 70-kn winds near 15.7°N, 134.8°W. Only 18 hr later, however, John was again a tropical storm with 60-kn winds near 15.4°N, 138.2°W. The Eastern Pacific Hurricane Center issued its final advisory on the cyclone at 1200 on the 23d.

John moved into the central North Pacific, passing 300 mi south of the Hawaiian Islands on the 27th. He was downgraded to a tropical depression 400 mi southwest of the Islands on the 28th. A final advisory was issued by the Central Pacific Hurricane Center at 0000 on August 31 as John dissipated rapidly about 100 mi southwest of Johnston Island.

### HURRICANE KRISTY - AUGUST 18-28

The second disturbance to develop on August 15 began near 10°N, 104°W. Moving northwestward over 81°F water, the disturbance intensified. By 1800 on the 18th satellite pictures showed cyclonic circulation, and the disturbance was upgraded to a depression near 13.6°N, 109.2°W. Winds increased to 40 kn on the 19th, and the depression was upgraded to tropical storm Kristy near 14.1°N, 110°W. The storm, with a well-defined eye, was now about 280 mi south of Socorro Island. By 1800 Kristy had 65-kn winds and was upgraded to a hurricane near 15.5°N, 112.3°W. She reached maximum intensity of 90 kn at 0600 on the 21st near 17.3°N, 117.2°W. By the 22d Kristy had moved to 18.4°N, 119.4°W. She turned westward and began to weaken over 78°F water. Low clouds to the northwest entered the low-level circulation, further weakening the hurricane. By 0600 on the 24th the winds had dropped to 55 kn, and the hurricane was downgraded to a tropical storm near 18.7°N, 130.3°W. Kristy now turned west-northwestward past the low clouds to an area of warmer 81°F water and began to intensify again. By 0000 on the 25th she was again a hurricane with 70-kn winds near 19.8°N, 134.2°W. Winds increased to 75 kn by 0600 but then began to decrease again as the cyclone moved back over water of 78°F. By 1800 Kristy was a tropical storm with 60-kn winds. The final advisory issued by the EPHC on the cyclone was on August 26 at 0600 with the center near 21.3°N, 139.1°W.

Kristy moved into the central Pacific. Winds near the center continued to decrease, and she was downgraded to a tropical depression at 0600 on the 27th at 21.5°N, 143.5°W. The CPHC issued its final advisory on the cyclone at 1800 on the 28th with the center 450 mi northeast of the island of Hawaii.



## EASTERN NORTH PACIFIC TROPICAL CYCLONES

### TROPICAL STORM LANE - AUGUST 19-23

The third tropical disturbance to begin on August 15 began near 10.2°N, 124°W. Moving west-northwestward over 81°F water, the disturbance developed slowly. By the 19th satellite movie loops showed cyclonic circulation, and the disturbance was upgraded to a depression near 13.2°N, 135.8°W. The winds increased to 35 kn by 1800, and the depression was upgraded to tropical storm Lane near 13.7°N, 139°W. Turning to the northwest, tropical storm Lane moved to 14.4°N, 139.8°W, by 0000 on the 20th. Winds near the center had increased to 45 kn. The storm then turned westward and began to weaken over 78°F water. Winds decreased to 30 kn by the 22d, and the storm was downgraded to a tropical depression. The final advisory was issued at 1800 on the 23d as the center dissipated 280 mi south of the island of Hawaii.

### TROPICAL STORM MIRIAM - AUGUST 23 - SEPTEMBER 2

There was a small disturbance 400 mi south of Acapulco on August 19. It moved westward and developed slowly until the 23d. At 1500 satellite pictures showed cyclonic circulation about the center, and the disturbance was upgraded to a tropical depression near 10.9°N, 114.9°W. The cyclone showed little further intensification until the 26th. Satellite movie loops no longer indicated cyclonic circulation; and the depression, moving westward at about 20 kn, was downgraded to a disturbance near 12.1°N, 129°W. At 1800 on the 26th cyclonic circulation was again evident, and the disturbance was upgraded to a tropical depression. Turning west-northwestward, it begun to intensify. Early on the 27th the winds had increased to 35 kn, and the depression was upgraded to tropical storm Miriam near 13.2°N, 134.8°W. Miriam crossed into the central Pacific late on the 27th with winds at their maximum intensity of 55 kn through 1800 of the 28th. Moving west-southwestward, Miriam passed 220 mi south of the island of Hawaii on the 30th. She dissipated 580 mi southwest of Hawaii by September 2.

### HURRICANE NORMAN - AUGUST 30 - SEPTEMBER 6

Hurricane Norman began as a tropical disturbance 400 mi southeast of Acapulco on August 29. Moving westward, the disturbance was upgraded to a tropical depression at 1800 on the 30th near 12.8°N, 98°W. Winds near the center increased rapidly to 40 kn by 0000 on the 31st, and the depression was upgraded to tropical storm Norman near 12.8°N, 98.8°W. Turning toward the west-northwest, Norman continued to intensify. By 0600 on September 1 he reached hurricane strength with 65-kn winds near 14.6°N, 103°W, which is about 230 mi southwest of Acapulco. A small eye was visible on satellite pictures at 1315. The winds continued to increase as Norman moved west-

northwestward over 85°F water. By 0000 on the 2d he had 95-kn winds, and 6 hr later 115 kn. The AMERICAN LEGION, ASIA HONESTY, B.T. ALASKA, EAGLE, KUROBE MARU, MAIN EXPRESS, TACOMA CITY, and TEMPLE INN contributed most valuable observations between 0600 on the 1st and 1200 on the 2d. The ASIA HONESTY, only 30 mi north of Norman at 1200 on the 2d, reported 41-ft seas and easterly winds of 93 kn. Norman passed over the northeast coast of Socorro Island between 1700 and 1800 on the 2d. By 0000 on the 3d, Norman reached maximum intensity of 120 kn near 19.8°N, 112.4°W. The first reconnaissance flight of the season penetrated Norman at 2339 on the 2d with a second flight at 0152 on the 3d. The eye of the hurricane was reported to have a closed wall 40 mi in diameter and weak from northeast to northwest. Observations from the ANTONIA JOHNSON, DAMPIER MARU, ERIKA BOLTEN, NEDLLOYD SINOUTSKERK, NORTH HEMPTONSHIRE, OGDEN TIBER, and OVERSEAS JUNEAU between 1800 on the 2d and 0600 on the 3d helped forecasters to better evaluate the storm and to forecast its movement. Norman continued to move west-northwestward at 15 kn under the southwest side of an upper level high centered over the tip of Baja California. As the cyclone moved over cooler water, winds began to diminish. Reconnaissance aircraft flew through Norman again at 1813 on the 3d. This time the eye was reported as poorly defined, and the surface winds, which were estimated from pressure readings, had decreased to 90 kn. Clouds and precipitation spread northward into strong southwesterly flow aloft and were being carried rapidly inland over California on the 4th. Norman was now about 450 mi west of Puerto Magdalena on the Baja California coast. He turned northward while still under the southwest side of the upper level high, which was now centered over extreme northwest Mexico. By 1800 on the 4th Norman's winds had decreased to 50 kn over cooler water, and he was downgraded to a tropical storm near 25.3°N, 120.7°W. Norman raced to 28°N, 120.4°W, by 0600 of the 5th and turned north-northeastward. Reconnaissance aircraft made a final flight through Norman at 1730 on the 5th. Winds, estimated from pressure readings, had decreased to between 30 and 35 kn. By 1800 the cyclone was downgraded to a tropical depression with the center near 30.7°N, 119.1°W. The AQUILA, CHEVRON MISSISSIPPI, FREDERICK LYKES, and TSURUMI MARU were helpful in analyzing the cyclone during this period. Accelerating toward the north-northeast, the depression was weakening rapidly. The final advisory was issued on September 6 with the center 20 mi south of San Clemente Island off the southern California coast.

### HURRICANE OLIVIA - SEPTEMBER 20-23

Hurricane Greta moved from the Atlantic Ocean across Central America into the Pacific Ocean. She moved onshore along the Belize coast during the evening of September 19. Moving westward, Greta was downgraded to a tropical storm



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over northern Guatemala at 1000. She turned west-southwestward over extreme southeastern Mexico and was downgraded to a tropical depression 90 mi inland from the Pacific coast at 1800. The first advisory on the cyclone was issued by the EPHC on the 20th with the center still 30 mi inland from the coast. As the depression moved offshore over 83°F water, it began to intensify. By 0600 the winds had increased to 35 kn, and it was upgraded to a tropical storm near 15°N, 94°W. As an eastern North Pacific cyclone, the storm was named Olivia. By 1200 the storm had moved to 14.6°N, 95°W. It turned northward, and the winds increased to 55 kn. Olivia then reversed course and began to drift slowly toward the south. The NORDKAP, 30 mi from the center at 0500 on the 21st, reported 55-kn winds. Olivia continued to intensify as she moved southward. The SIJILMASSA, 60 mi from the center at 2200, reported 45-kn winds and rough seas. Radar on the ship fixed Olivia's center near 14°N, 95°W. By 0000 on the 22d, Olivia's winds had increased to 65 kn over 86°F water, and the storm was upgraded to a hurricane. The PACIFIC PRINCESS reported 60-kn winds within 30 mi of Olivia's center. The hurricane remained near 14°N, 95°W, until 0600, then turned north-northeastward and began to weaken over 83°F water. Her winds decreased to 50 kn by 1800 and Olivia was downgraded to a tropical storm near 15.9°N, 94.3°W. She was dissipating rapidly only 10 mi off the coast of the Gulf of Tehuantepec. The storm moved onshore 50 mi east of Salina Cruz on the Gulf of Tehuantepec between 1900 and 2000. The final advisory on the cyclone was issued on the 23d with the center 30 mi inland from the coast near 16.5°N, 94°W. Winds near the center had diminished to between 20 and 30 kn.

### TROPICAL STORM PAUL - SEPTEMBER 23-26

Paul began as a disturbance near the Mexican coast and 200 mi west-northwest of hurricane Olivia on September 22. Moving southwestward, the disturbance was upgraded to a tropical depression near 14.1°N, 100.5°W, at 0000 on the 23d. It then turned west-northwestward and moved to 19.3°N, 108.8°W, by 0600 of the 25th, showing little intensification. The AMERICAN LIBERTY, CHESHIRE, DAISHIN MARU, LADY JOSEPHINE, MASON LYKES, NEDER ELBE and the PACIFIC DARBY contributed observations which were of great value to the analyst. Turning to the north-northwest, the depression began to intensify. By 1200 of the 25th the winds had increased to 35 kn, and the depression was upgraded to tropical storm Paul. The cyclone was now 120 mi northeast of Socorro Island and 160 mi south of the tip of Baja California. Paul turned northward, and winds near his center reached their maximum intensity of 40 kn on the 26th. The EXXON BOSTON and PACIFIC transmitted helpful observations. Turning toward the north-northeast, the storm passed 25 mi east of the tip of Baja California between 0100 and 0300. As it moved toward the

coast of Mexico, it began to weaken. By 1200 on the 26th winds had decreased to 30 kn, and the storm was downgraded to a tropical depression off the Mexican coast near 25°N, 108.2°W. Remnants of the cyclone dissipated over northern Mexico.

### HURRICANE ROSA - OCTOBER 2-7

This storm began as a tropical disturbance 300 mi south of the Gulf of Tehuantepec on October 1. Moving west-northwestward at 12 kn, the disturbance began to develop between two centers of convective activity 150 mi apart. Turning counterclockwise about each other, the two centers merged into one large center, 250 mi in diameter, near 13.2°N, 101.4°W, by 1200 on the 2d. Cyclonic circulation could be seen by 1800, and the disturbance was upgraded to a tropical depression 250 mi southwest of Acapulco. The depression turned toward the northwest and, while moving over 84°F water, continued to intensify. By 0000 on the 3d the winds had increased to 45 kn, and it was upgraded to tropical storm Rosa near 14.9°N, 103.7°W. She was a hurricane by early on the 4th near 17.6°N, 107.6°W. Rosa continued to intensify as she moved around the west side of an upper level high centered over Mexico. By 1800 winds reached maximum intensity of 75 kn 100 mi east of Socorro Island. The ships MEMNON, NORDHVAL, PAGNOL, and PUERTOVAL-LARTA were helpful in locating Rosa. The hurricane continued northwestward for another 12 hr, then turned northward and began to weaken over 81°F water. The ROYAL VIKING STAR, SANTA MERCEDES, and the SVENDBORG MAERSK broadcast valuable observations on the 5th. Reconnaissance aircraft made three penetrations into Rosa on the 5th at 1420, 1530, and 1615. The eye, which was open to the southwest, was described as elliptical with a 30-mi major axis oriented from northeast to southwest. The surface winds as estimated from pressure ranged from 60 to 70 kn. By 1800 Rosa's winds had decreased to 60 kn, and she was downgraded to a tropical storm near 21.3°N, 109.9°W, about 100 mi south of the tip of Baja California. The storm moved northward for another 12 hr, then northward, and began to weaken rapidly over colder water. By 1800 on the 6th winds near the center were 25 kn, and the cyclone was downgraded to a tropical depression near 22.8°N, 110.6°W. The final advisory was issued on October 7 with the center about 60 mi west of the tip of Baja California.

### TROPICAL STORM SERGIO - OCTOBER 18-20

The final cyclone of the season began as a disturbance 350 mi southeast of Socorro Island on October 18. It moved westward at 5 kn and showed little intensification for the first 12 hr. It then turned northwestward and began to intensify rapidly over 84°F water. Winds reached 35 kn by 1800, and the disturbance was upgraded to tropical storm Sergio about 20 mi southeast of

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Socorro Island. The FREDERICK LYKES and PRAG were helpful in analyzing Sergio at this time. Sergio accelerated northwestward to 18.7°N, 110.7°W, by 1200 on the 19th. With winds remaining at 35 kn, he crossed over Socorro Island between 1300 and 1400. Sergio began to weaken, and by 0600 on the 20th his winds had decreased to 30 kn. He was downgraded to a tropical depression near 21.7°N, 113.9°W. The cyclone turned northward and weakened rapidly over colder water. The ALIOTH and NORDKAP supplied valuable observations. The final advisory for this storm and for the season was issued at 1800 on October 20.

Table 1.--Monthly distribution of eastern North Pacific tropical cyclones, 1978\*

	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Tropical depressions	0	1	0	1	1	0	0	3
Tropical storms	0	1	1	2	1	1	0	6
Hurricanes	1	2	3	4	1	1	0	12
Total	1	4	4	7	3	2	0	21

\*Cyclones are ascribed to the month in which they began.

Table 2.--Frequency of eastern North Pacific tropical storms and hurricanes combined by months and years\*

Year	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
1966	0	1	0	4	6	2	0	13
1967	0	3	4	4	3	3	0	17
1968	0	1	4	8	3	3	0	19
1969	0	0	3	2	4	1	0	10
1970	1	3	6	4	1	2	1	18
1971	1	1	7	4	2	2	1	18
1972	1	0	1	6	2	1	1	12
1973	0	3	4	1	3	1	0	12
1974	1	3	3	6	2	2	0	17
1975	0	2	4	5	3	1	1	16
1976	0	2	4	4	3	1	0	14
1977	1	1	1	1	3	1	0	8
1978	1	3	4	6	2	2	0	18
Total	6	23	45	55	37	22	4	192
Average	0.5	1.8	3.5	4.2	2.8	1.7	0.3	14.8

\*Cyclones are ascribed to the month in which they began.

Table 3.--Number of eastern North Pacific tropical storms reaching hurricane intensity by months and years\*

Year	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
1966	0	1	0	4	2	0	0	7
1967	0	1	0	2	1	2	0	6
1968	0	0	0	3	2	1	0	6
1969	0	0	1	1	1	1	0	4
1970	1	0	1	1	0	1	0	4
1971	1	1	5	2	2	1	0	12
1972	1	0	0	6	1	0	0	8
1973	0	1	3	0	2	1	0	7
1974	0	2	2	4	2	1	0	11
1975	0	1	2	3	1	1	0	8
1976	0	2	1	2	3	0	0	8
1977	0	0	1	1	1	1	0	4
1978	1	2	3	4	1	1	0	12
Total	4	11	19	33	19	11	0	97
Average	0.3	0.8	1.5	2.5	1.5	0.8	0.0	7.5

\*Cyclones are ascribed to the month in which they began.



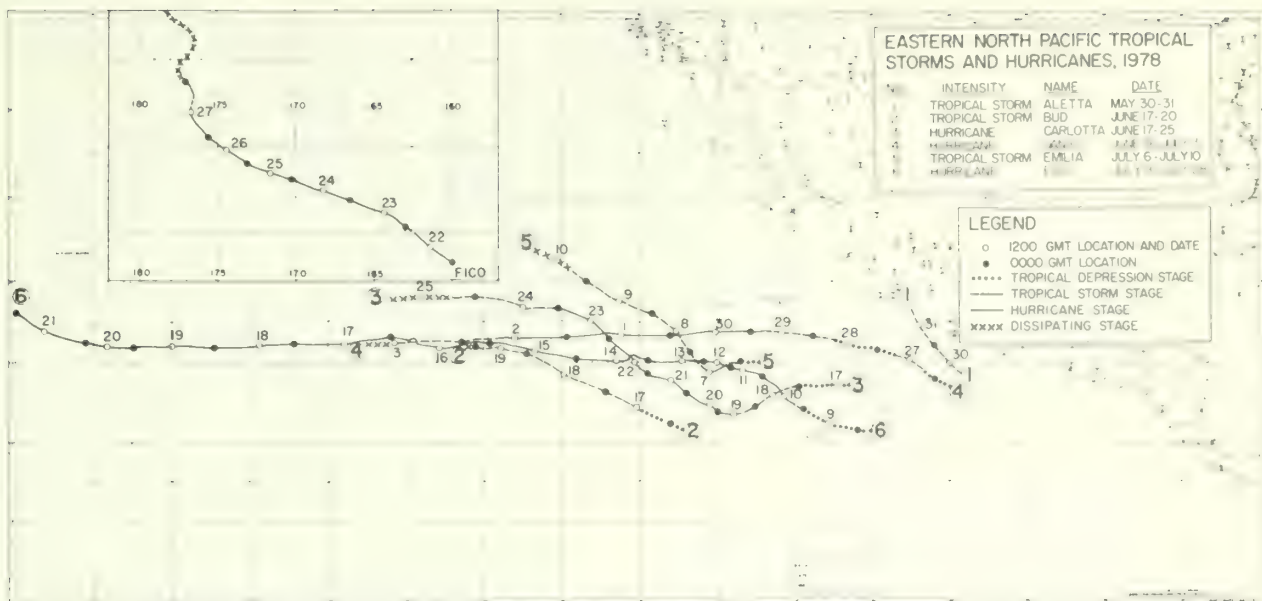


Figure 1.--Tracks of eastern North Pacific tropical cyclones, May 30 to July 28.

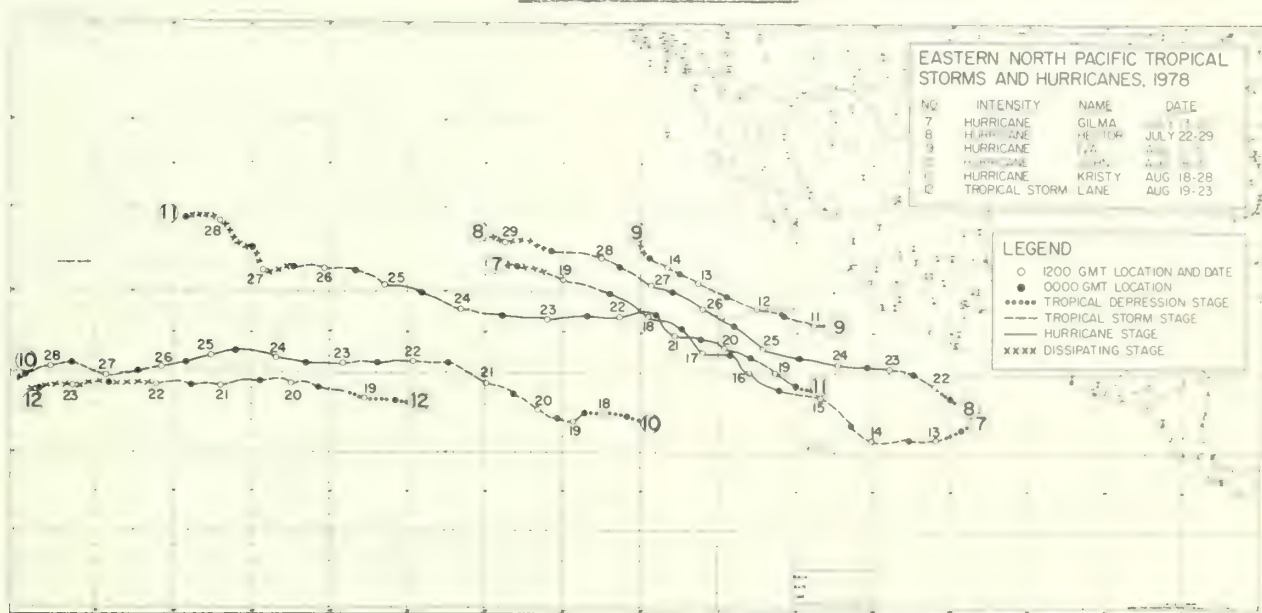


Figure 2.--Tracks of eastern North Pacific tropical cyclones, July 13 to August 23.

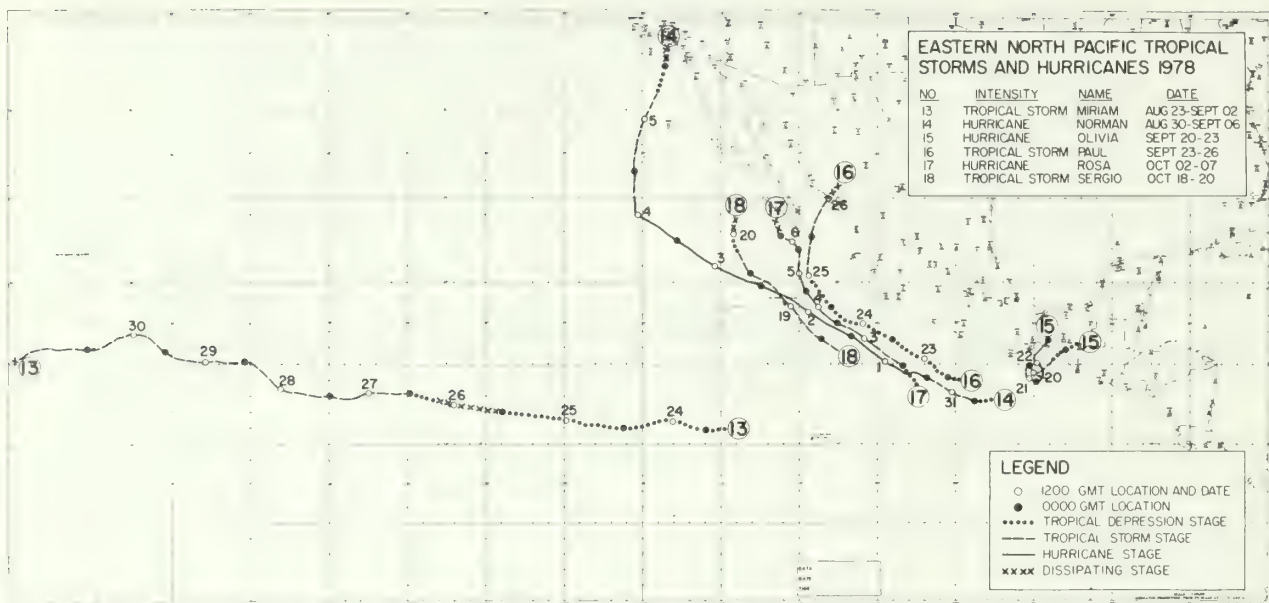


Figure 3.--Tracks of eastern North Pacific tropical cyclones, August 23 to October 20.

# CENTRAL NORTH PACIFIC TROPICAL CYCLONES, 1978

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Without question 1978 was the year of greatest tropical-cyclone activity in the central North Pacific on record. Thirteen cyclones or their readily identifiable remnants entered or formed in the area which extends from longitude 140°W to the International Date Line and northward from the Equator. The season not only set a record for number of occurrences but also produced a storm with an exceptional length of travel and persistence of hurricane intensity (Fico), as well as one of the two most-intense hurricanes on record in the central North Pacific area (Susan). Figure 1 shows the tracks of the various tropical cyclones which entered the Central Pacific Hurricane Center's (CPHC) area of responsibility during the 1978 season.

Table 1 is a chronological listing of the season's various events. Dates pertinent to central Pacific activity are given for each cyclone. Vortices listed are those storms which entered the central Pacific as unique systems. Each is the weakened stage of a tropical cyclone which originated in the eastern North Pacific and was tracked by GOES-3 satellite imagery into the central Pacific. Two of these vortices were tracked completely across the central Pacific and into the western Pacific. All of them were accompanied by significant weather, which varied from clusters of thunderstorms to extensive areas of heavy rainfall, and were designated as tropical disturbances in forecasts issued by the National Weather Service Forecast Office in Honolulu.

## BUD - JUNE 24-26

The central Pacific season began with Bud, which had been a tropical storm east of longitude 140°W. Remnants of Bud reached 14°N, 140°W, as a tropical disturbance, then abruptly turned southward and died in the Intertropical Convergence Zone (ITCZ) on June 26.

## CARLOTTA - JUNE 26-JULY 3

The ex-hurricane passed across 19°N, 140°W, and proceeded nearly straight westward along 20°N. The center of the vortex passed over the Alenuihaha Channel between the Big Island of Hawaii and the island of Maui on June 28. During its travel across the length of the island chain it produced heavy rainfall over much of the area north of the center, but there was no appreciable increase in windspeeds. Rainfall amounts in many areas were as high as 6 in (152 mm), especially over the island of Oahu. As far as the Hawaiian public was concerned, Carlotta was one of the major weather producers of the season.

Carlotta's remnants continued to be clearly identifiable as a tropical disturbance on GOES-3 imagery as the storm proceeded westward. It was tracked to longitude 170°E, where it merged with a cold low aloft. It continued to move westward to near Marcus Island (24°N, 154°E) on July 10.

## DANIEL - JULY 3-11

On July 3, the same day that the remains of Carlotta left the central Pacific, ex-hurricane Daniel entered the eastern side of the area at 16°N also as a tropical disturbance. This vortex moved westward (like that of Carlotta but on a slightly more southerly track) across the entire central Pacific between latitudes 16°N and 17°N. Definite dissipation of the vortex did not occur until it approached 19°N, 171°E, on July 12. On July 6 the cloud mass encompassed nearly 180,000 mi<sup>2</sup> and was of much concern to aviation and shipping interests. At this time the Honolulu forecast staff anticipated another episode of heavy rainfall over the entire island chain. Windward sections of the Big Island and Maui did receive 5 to 7 in of rain from ex-Daniel, but rainfall over windward and mountain sections of the other islands was quite spotty and generally under the 2-in mark. Resultant divergent low-level wind flow caused the leeward portions of the Islands to remain mostly fair.

## HURRICANE FICO - JULY 17-28

Fico entered the central Pacific at 16°N, 140°W, on July 17 with maximum sustained winds near 80 kn. He previously had peaked at 115 kn in the eastern Pacific east of the 140th meridian. Fico proceeded along the 16th parallel to a point due south of South Point, Hawaii, the southernmost part of the Big Island. U.S. Air Force reconnaissance and NESS satellite imagery observed a steady increase in Fico's intensity during his travel from 140°W to the position south of South Point. The RACHEL was sailing eastward north of Fico near 142°W on the 18th, where she encountered 50-kn winds and swell waves of 41 ft.

Surf from the open-ocean swell generated by Fico began to rise on July 18, with some beach road flooding along the southeast coast of the Big Island when the hurricane was 500 mi to the southeast. The high surf was a combination of east-northeasterly swell from the hurricane and strong southerly swell from a Southern Hemisphere storm. By the next morning Civil Defense officials reported 30-ft (9.1 m) surf breaking well offshore with lesser 15 to 20ft short-period



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surf doing considerable damage to beachfront homes and roads along Big Island shores. Surf of 8 to 12 ft was observed on eastern Maui by noon of the 19th, with water over roads in that area but no damage reported. Very short-period surf of similar heights reached southern Oahu and southern Kauai on the following day. Six people aboard the 43-ft sloop DIASTOLES were rescued by a Navy torpedo boat after the sloop lost its auxiliary power off Hanalei, Hawaii, and was unable to make headway in the 50-kn winds. The 65-ft tugboat LIHUE III went aground on a reef at Kukuiula in high seas.

At this time the eye of the hurricane was 175 mi south-southwest of South Point with maximum sustained winds of 100 kn. The CHEVRON GENOA, which had been following Fico, measured 36-kn winds, 10-ft seas, and 16-ft swells about 100 mi to the northeast. Fico had already begun moving northwestward, maintaining 100-kn winds until he was 190 mi southwest of Kauai. Subsequently, Fico very slowly lost intensity. At 2100 on the 21st the TOWNSEND CROMWELL fought 35-kn winds and 15-ft seas southwest of Oahu. A strong trade wind gradient, increased by the proximity of Fico, caused gusty winds over all the islands with numerous reports of 50 kn or more, accompanied by falling trees and power outages.

Fico maintained hurricane intensity for 17 days. He was tracked by the Honolulu and San Francisco National Weather Service forecast offices (with much support from their respective NESS units) for approximately 5,000 mi. On the 28th the MING LEADER found 55-kn winds northeast of Midway Island after Fico had turned extratropical. Even in his dying stages Fico did not want to give up. Remnants of the storm, enmeshed in a strong cold frontal system, inflicted heavy rain and up to 40-kn winds on ships to the southeast of Cold Bay in the Aleutians on July 31.

## GILMA - JULY 22-27

At the same time that Fico was 215 mi southwest of Kauai on July 22, the remnants of hurricane Gilma entered the central Pacific at latitude 23.8°N. This well-defined vortex proceeded westward between the 23d and 24th parallels until it reached 155°W, the longitude of the island of Hawaii. It then took a west-northwestward track and passed 180 mi to the north of Oahu and Kauai on the 24th. From that point the vortex moved northwestward and dissipated near 31°N, 164°W, on July 27.

The Gilma disturbance covers an area from 20°N to 30°N between 147°W and 155°W, a total of 300,000 mi<sup>2</sup>. Its wind field, as well as the associated shower and thunderstorm activity, is of great importance to numerous ships and light aircraft traversing the central Pacific.

## HECTOR - JULY 31-AUGUST 2

The remnants of hurricane Hector entered the central Pacific near 24°N and for 2 days took the same track as the vortex of Gilma had taken 9 days earlier. Since there had been little change in the general synoptic situation throughout the area during that time, it seemed that the history of this vortex would be similar to Gilma's. But Hector rapidly dissipated just 300 mi northeast of the island of Hawaii on August 2.

## TROPICAL DEPRESSION 10 - AUGUST 6-9

The next tropical cyclone in the area developed in a very active portion of the ITCZ at 11°N, 145°W, on August 5. By the next day it was classified as a tropical depression. Since it originated in the central Pacific, it was given a number by the Joint Typhoon Warning Center (JTWC) at Guam--number 10. Some confusion developed since the Eastern Pacific Hurricane Center was following another tropical depression numbered 10 at the same time.

Maximum winds associated with this cyclone were never greater than 30 kn; however, it generated an extensive area of rainfall with some embedded very heavy thunderstorms. Heavy rains began on August 6 on the island of Hawaii and spread westward over the island chain through the 8th. Rainfall amounts generally averaged 3 to 5 in.

## IVA - AUGUST 19-21

Iva had a rather unusual lifespan in the central Pacific. On August 19 the leading edge of a massive cloud and shower shield associated with the diffuse remnants of Iva reached 140°W. Twenty-four hours later the rain shield was caught in the trade winds, and its edge moved 8° of longitude to the west ahead of the parent vortex. One day later the rain shield reached the eastern shores of the Big Island and Maui with many areas reporting 5 to 6.5 in. Little was left of Iva thereafter.

## HURRICANE JOHN - AUGUST 23-30

Hurricane John and tropical storm Kristy and Lane became named storms at the same time on August 19 in the eastern Pacific. John had reached maximum strength with sustained winds of 90 kn on the 24th near 16°N, 146°W, and then he steadily weakened. At the time of the photo, he was 225 mi to the south-southwest of the Big Island, classified as a tropical storm with maximum sustained winds of 35 kn. He weakened to depression intensity on the morning of the 28th. He was caught in the trades and then meandered west-southwestward to 170°W, where he was last identified on August 30.

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## TROPICAL STORM KRISTY - AUGUST 26-28

Kristy entered the central Pacific near latitude 21°N with 45-kn winds and an area of active thunderstorms to the northeast. This storm described a pronounced sinusoidal north-westward track, while gradually weakening, but continued to be accompanied by significant weather of concern to maritime and aviation interests. At 2315 on August 27, Kristy was downgraded to a tropical depression, but she still affected ship and air routes to the mainland United States. She rapidly disintegrated during the next 24 hr and lost her identity on August 28.

Pacific. Her maximum sustained winds of 120 kn equalled those attained by Celeste in August 1972. The NICKEL I ran into 50-kn northeasterlies on the 23d more than 400 mi northeast of the eye. At that time, Susan posed a very real threat to the Hawaiian Islands. After moving 220 mi southeast of the Big Island, Susan turned sharply to the southwest and disintegrated very rapidly. Once again, the Islands were spared! The pressure rose more than 50 mb in 24 hr with the onset of strong upper wind shear.

## TROPICAL STORM LANE - AUGUST 20-23

On August 19 tropical storm Lane was centered further west than hurricane John and tropical storm Kristy, which explains why he entered the central Pacific ahead of the others and out of alphabetical order. The center of tropical storm Lane reached the central Pacific near 14°N on August 20 with maximum sustained winds, near their peak for this storm, of 50 kn. He proceeded nearly due west and gradually weakened--dying out 360 mi south-southwest of the Big Island on the 24th with no appreciable effect on island weather.

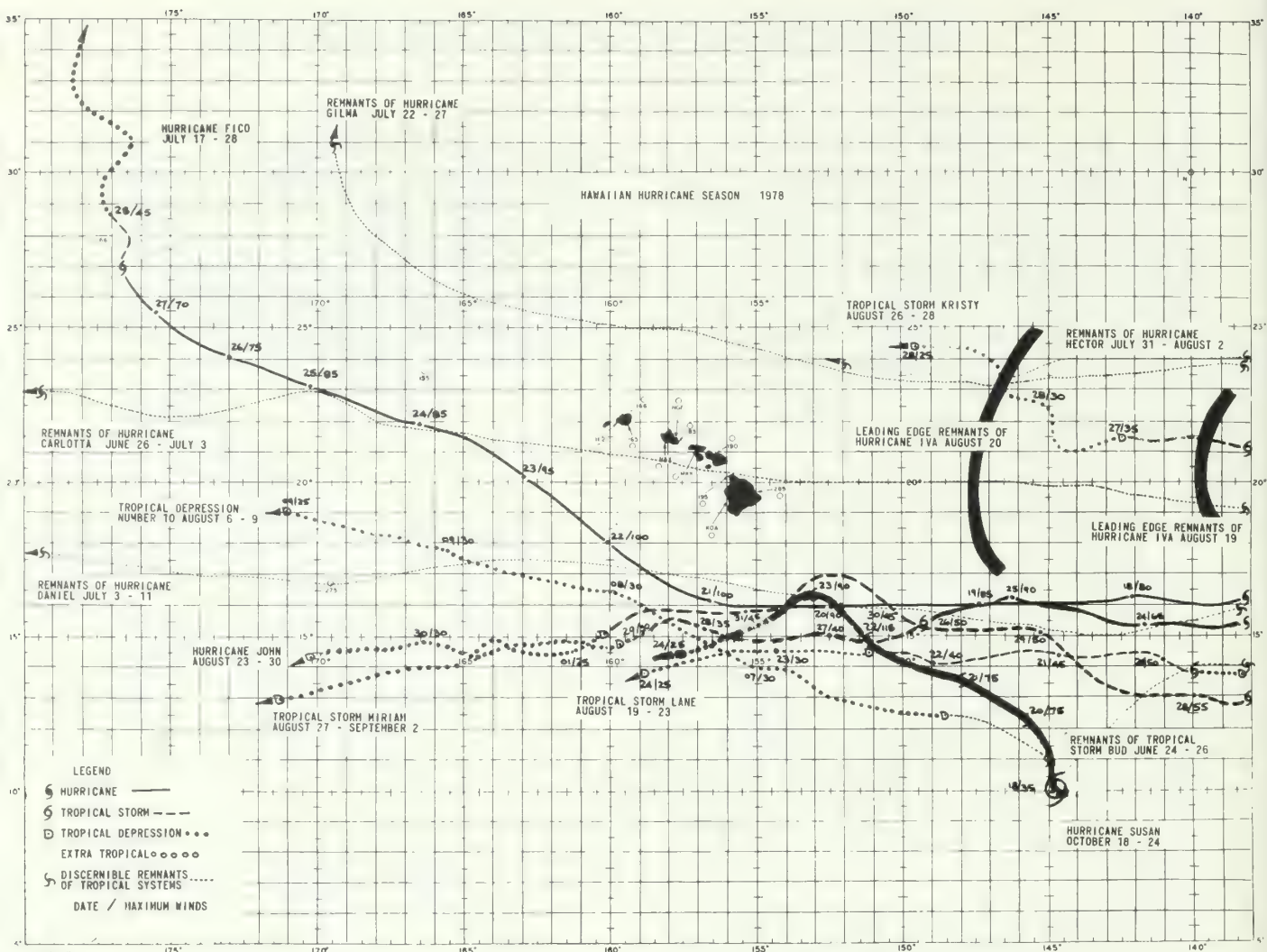
## TROPICAL STORM MIRIAM - AUGUST 27-SEPTEMBER 2

Miriam moved from the eastern Pacific into the central Pacific with maximum sustained winds of 55 kn, while Kristy and John were still active cyclones. Miriam entered at a point (13°N, 140°W) farther south than any of the other storms which entered from the eastern Pacific. On August 29 Miriam took a heading which threatened the Big Island of Hawaii, and public advisories were issued. But the next morning the storm abruptly changed course and turned to the southwest, eliminating the threat, Miriam kept her tropical-storm classification until she was about 400 mi south of the island of Kauai; thereafter, she decayed quite rapidly.

## HURRICANE SUSAN - OCTOBER 18-24

With the demise of Miriam, the Honolulu forecast staff thought that possibly the central Pacific season was over. But on October 18 a suspicious area on the ITCZ southeast of Hawaii rapidly developed into a fullfledged tropical storm. This was the capricious Susan the last storm of the season. Susan developed tropical-storm strength at precisely the same location where Bud, the first storm of the season, had died (10°N, 145°W).

On October 21, Susan became one of the two most-intense hurricanes on record in the central

Table 1.--Central North Pacific tropical-cyclone data, 1978<sup>1</sup>

Name	Dates	Maximum Class	Maximum sustained winds (kn)	Lowest pressure (mb)	Total hours observed
Bud	June 24-26	Vortex	N/A	N/A	48
Carlotta	June 26-July 3	Vortex	N/A	N/A	168
Daniel	July 3-11	Vortex	N/A	N/A	192
Fico	July 17-28	Hurricane	100	955	225(H) 15(TS) 36(ET)
Gilma	July 22-27	Vortex	N/A	N/A	144
Hector	July 31-Aug. 2	Vortex	N/A	N/A	60
T.D. 10	August 6-9	Tropical Depression	E30 (NESS)	N/A	84
Iva	August 19-21	Vortex	N/A	N/A	54
John	August 23-30	Hurricane	90	965	48(H) 72(TS) 48(TD)
Kristy	August 26-28	Tropical Storm	E50 (NESS)	N/A	18(TS) 45(TD)
Lane	August 20-23	Tropical Storm	E50 (NESS)	N/A	66(TS) 27(TD)
Miriam	Aug. 27-Sept. 2	Tropical Storm	E55 (NESS)	N/A	72(TS) 6(TD)
Susan	October 18-24	Hurricane	120	954 (recce) 945 (Dvorak)	81(H) 30(TS) 24(TD)
Total hours observed per class - hurricane			354	<div>Key</div> <div>H hurricane</div> <div>TS tropical storm</div> <div>TD tropical depression</div> <div>ET extratropical</div> <div>NESS satellite estimate</div>	
			tropical storm 273		
			tropical depres. 150		
Total hours tropical-cyclone activity (all classes)			777		
Total hours vortices with significant weather			750		
Combined total			1,527 hours		

<sup>1</sup> All data pertain only to the period while the storm was in the central Pacific.



## SPECIAL NOTE

Compilation of the General Summary of National Flood Events and Flood Loss Statistics has been delayed.

These Data will be published later.

Chart I. Departure from Normal of Annual Temperature ( $^{\circ}\text{F}$ ) at Surface, 1978.

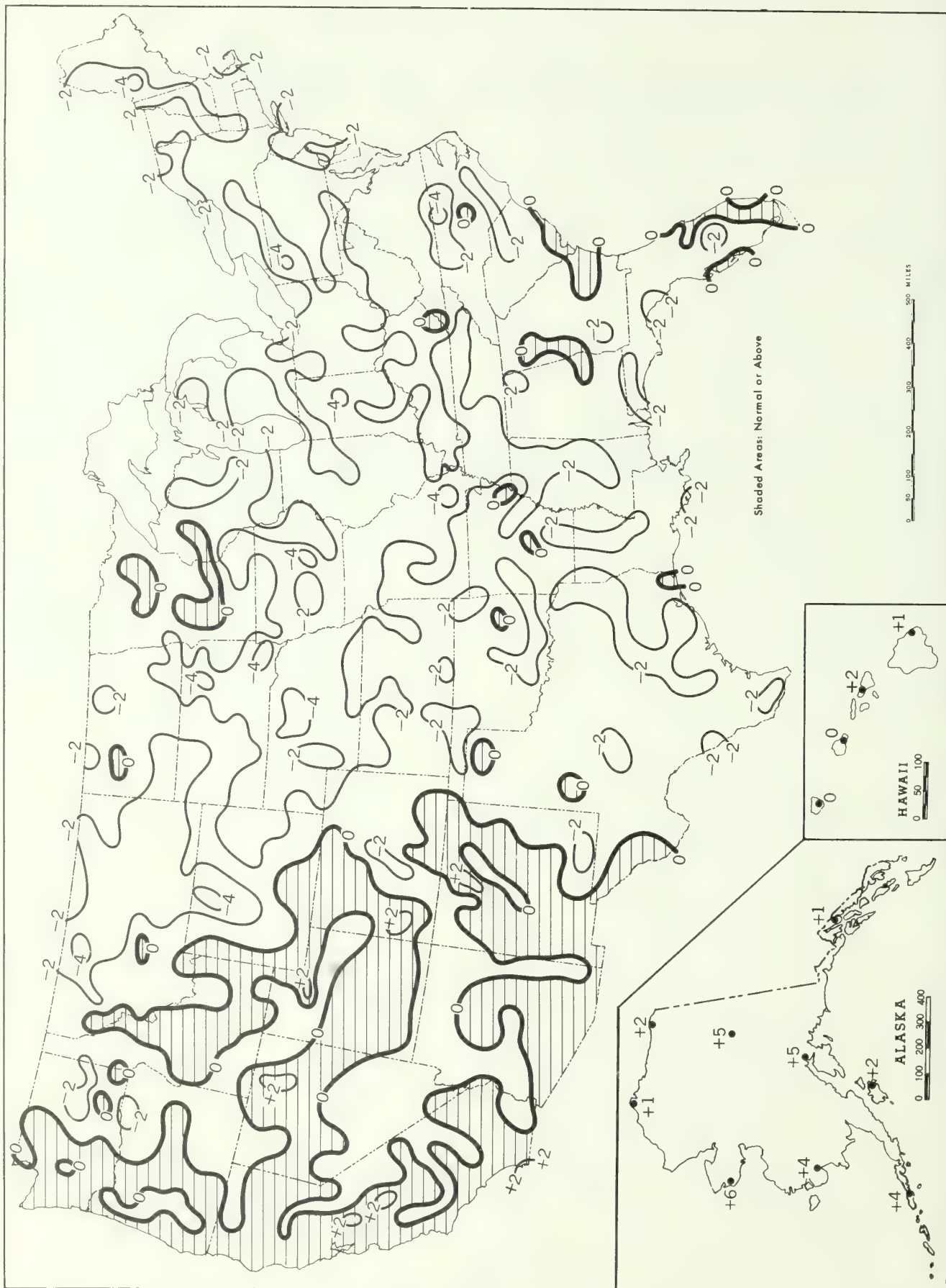


Chart II. Total Annual Precipitation (inches), 1978.

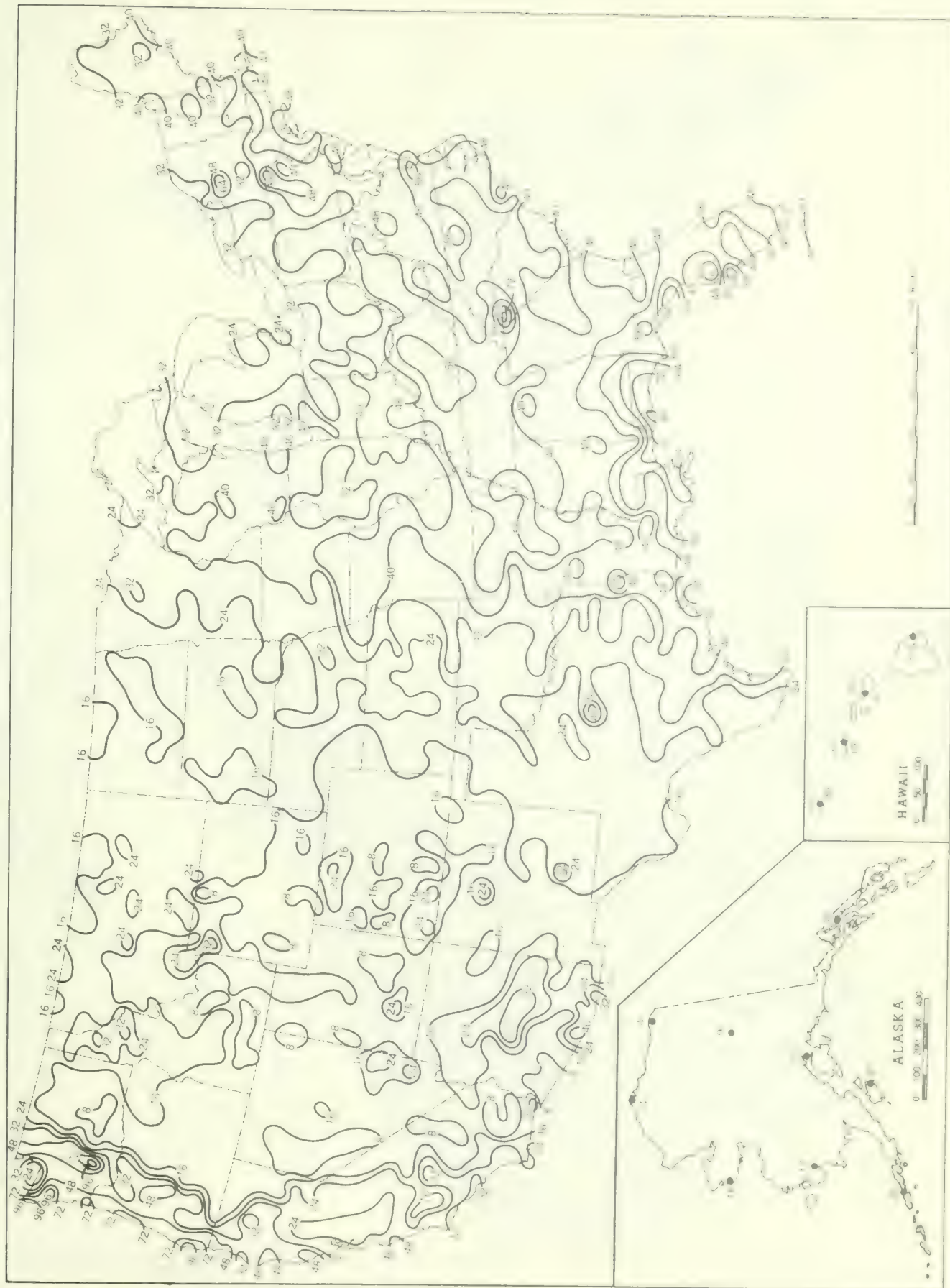
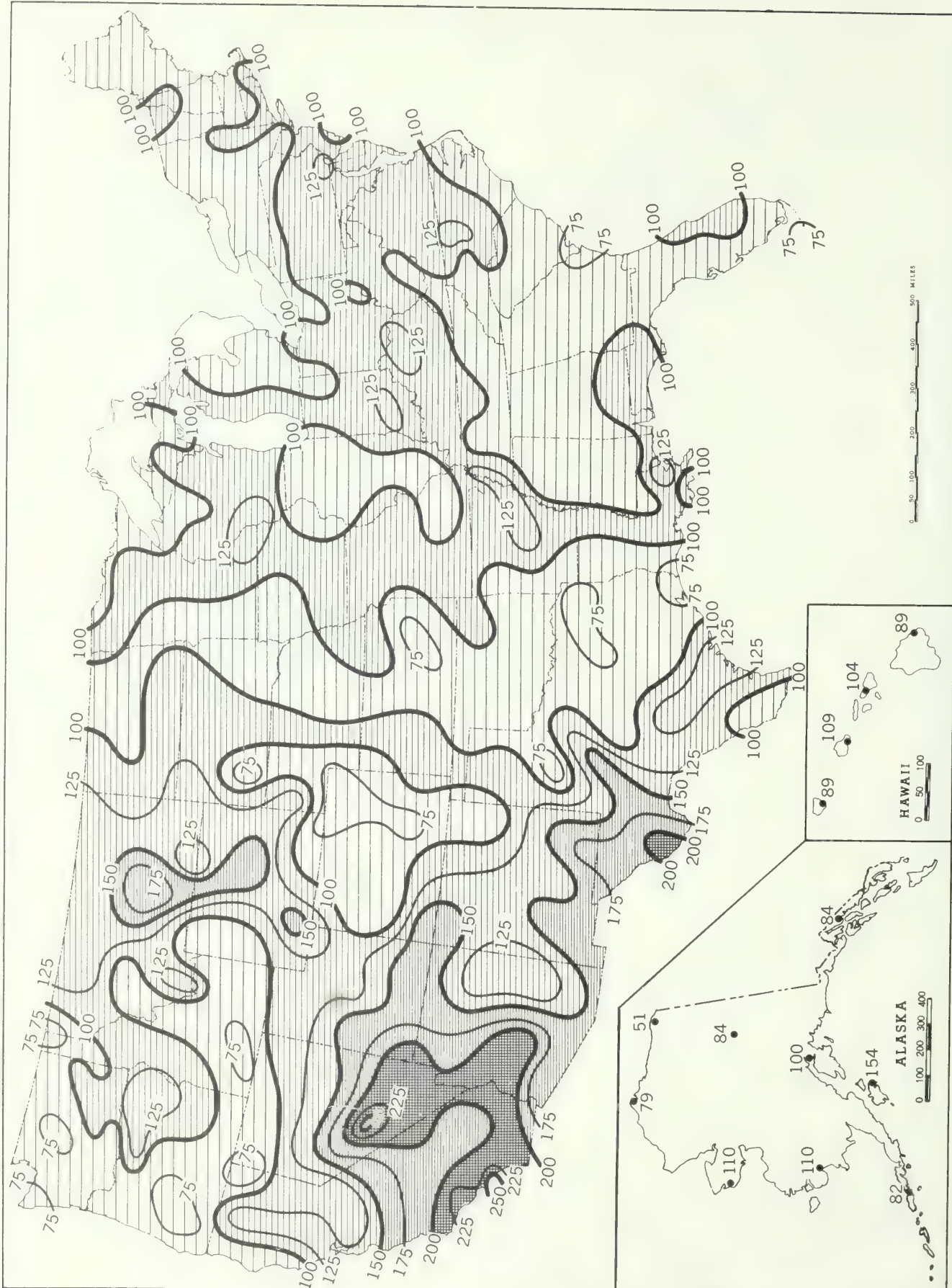




Chart III. Percentage of Normal Annual Precipitation, 1978.





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